

THE EFFECTS OF SELF-CONCEPT AND SELECTED
PERSONAL AND EDUCATIONAL VARIABLES UPON
ATTRITION IN A NON-CREDIT COLLEGE
READING IMPROVEMENT PROGRAM

By

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PREFACE

No accomplishment is ever the effort of only one person. Such an accomplishment is always produced in conjunction with the thoughts, the proddings, the efforts, and the prayers of other people.

The above statement is exemplified in this paper. It could not have been done without the help of my advisory committee: Dr. Bernard Belden, chairman; Dr. John Hampton, Dr. Sue Hawkins, and Dr. Gene Acuff. To Dr. Belden I express thanks for his patient understanding and words of confidence. To Dr. Hampton and Dr. Hawkins I offer gratitude for their many helpful ideas and for their continued availability for the discussion of those ideas. Dr. Acuff deserves praise for helping me develop new fields of interest.

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CHAPTER I

THE PROBLEM

Introduction

It has been the philosophy of most American colleges and universities to provide higher education to more than just the intellectual elite. In fact, the trend toward the future would seem to indicate an effort toward providing an opportunity for college education to all students who would have the academic capability to profit.

With the ever-expanding growth of the college student population comes a need for institutions of higher education to offer many special services to their students. One of these special services is a reading improvement program. The importance of teaching reading in the high school and college programs is stressed by Schick and Schmidt (1966, pp. 10-14). They see proficient reading ability to be necessary for the following reasons:

1. Reading is a prime requisite for expanding one's knowledge.
2. Reading is a major tool in school learning.
3. Reading leads to healthy personal and social adjustment.
4. Reading is required for maintaining the informed citizenry so required in a democracy.
5. Reading is a prime means of transmitting social and cultural heritage.

Schick and Schmidt go on to say,

The time to develop and refine an ability in reading is the time when that degree of development and refinement will be useful to the student in his reading. For this reason, it is apparent that the elementary school cannot develop in the child refinements of reading abilities which will be essential to the successful pursuance of high school or college work (1966, p. 14).

Any number of studies have demonstrated the effectiveness of college reading improvement programs. Ray (1962) and Stebens (1967) reported significant gains were made in reading capabilities as a result of a reading improvement program. It was also found that these gains persisted well beyond the end of the course. Similar results were reported by Beasley (1959) and Smith and Wood (1955). Smith and Wood also indicated the course made a significant effect on academic performance.

Miller (1967) reported students in a traditional reading program made significantly greater reading progress than a control group which had not taken the reading course. A group which used a self-help program made even greater gains in reading rate than the traditional group. Ray and Martin (1967) found no significant difference between the reading improvement of students with low initial reading scores and those with high initial reading scores.

Despite the evidence that college reading improvement programs can increase students' reading ability and despite the fact the students who enroll in these programs indicate a need to improve their reading, many students drop out of the reading programs before completing the courses. Studies by numerous researchers (Wood, 1961; Ray and Martin, 1967; Schneyer, 1963; Wright and Lazaraton, 1963; Miller, 1967; Ray, 1962; and Stebens, 1967) report the attrition rate to vary from 15 percent to as much as 50 percent in many programs.

Chansky (1964) suggests reading research must help answer questions such as, "How do biological, sociological and psychological factors move one to read and hence result in growth of self?" and "What steps can be taken to remedy any biological, sociological and psychological conditions which interfere with reading behavior." From the information given above, it can be seen that research is needed to attempt to determine variables that affect attrition in non-credit college reading improvement programs. It should be apparent that dropping out of the program will not generally lead to results comparable to those which might be achieved by remaining in the program.

The major variable of concern in this study is self-concept. Based upon Combs' (1962) self-concept theory, Quimby (1967) set as assumptions for her study that students with sufficient self-concepts will attempt to succeed. Students with insufficient self-concepts will not make such an attempt.

Homze (1962) suggests if the student has been a successful reader and if he recognizes this fact, he will develop a concept of himself as a "reader." This self-concept, in turn, will lead him to attempt more reading and more difficult reading. If the student has been generally unsuccessful in his reading, he will see himself as a "non-reader." Avoiding reading would then seem to be consistent with his self-concept.

Statement of the Problem

Teachers and administrators of college reading improvement programs must be concerned about the effects of their programs on the students who participate in them. They must also be interested in

providing each student with the type of experience most needed by that student. Generally, favorable results are found, but in many individual cases little or no improvement is made. Often individuals drop out of the reading course before its completion. Apparently those students who leave the course early feel their needs are not being met.

Identification of the determinants of attrition should be attempted. It was the purpose of this research to study some of the variables which might relate to the problem. The major variable studied was that of self-concept. An attempt was made to determine the relationship between a student's self-concept and his perseverance in a college reading improvement program. Various aspects of the self-concept were measured. Included were the areas of self-reliance, personal worth, personal freedom, feeling of belonging, withdrawing tendencies, nervous symptoms, self-concept of intelligence, self-concept as a student, and self-concept as a reader.

Variables other than self-concept were also studied. These variables were sex, academic potential, first semester college grade point average, and initial reading ability. The measure of reading ability included vocabulary, comprehension, total score, and reading rate scales. The total score for reading ability was the numerical addition of the vocabulary and comprehension scores.

The dependent variable was the completion or non-completion of the reading course. The attendants (Group A) were those students who attended the course on a regular basis throughout the complete program. The terminators (Group T) were students who terminated their attendance before the end of the program. Serving as independent variables were the various aspects of the student's self-concept, as listed above.

Other independent variables included the sex of the student, his academic potential, his first semester college grade point average, and his initial reading ability.

Hypotheses

This research study was designed to delineate differences between Group A--those students who attended the Oklahoma State University college reading improvement program on a regular basis throughout the program--and Group T--those students who terminated their attendance in the reading course any time before the final week of the program. Two major hypotheses were tested.

- I. There is a statistically significant difference between the self-concepts of the attendants (Group A) and the terminators (Group T) in the following aspects:
 - a. self-reliance
 - b. sense of personal worth
 - c. sense of personal freedom
 - d. feeling of belonging
 - e. withdrawing tendencies
 - f. nervous symptoms
 - g. total personal adjustment
 - h. self-concept of intelligence
 - i. self-concept as a student
 - j. self-concept as a reader
- II. There is a significant difference between selected personal and educational aspects of the attendants (Group A) and the terminators (Group T) in the following aspects:

- a. sex
- b. academic potential
- c. first semester college grade point average
- d. initial reading ability: vocabulary
- e. initial reading ability: comprehension
- f. initial reading ability: total score
- g. initial reading ability: rate

On both hypotheses, separate analyses were run for males and females.

Definition of Terms

A number of terms are used in the study which should be defined for clarity of reading. The following list contains those terms.

1. Self-Concept. One's evaluations of and attitudes toward one's own characteristics, including physical, mental, social, and emotional attributes. In this study, self-concept was operationally defined in terms of scores on the California Test of Personality, Personal Adjustment section and three subscales of the Englander scale.
2. The Oklahoma State University Reading Improvement Program.
A developmental reading program offered as a non-credit course to all students of Oklahoma State University on a volunteer basis. The program emphasizes comprehension and vocabulary skills, reading rate, and study skills. The course consists basically of diagnosis and practice in the areas just mentioned.

3. Attendant (or Group A). A first semester freshman student (or students) who completed all phases of the Oklahoma State University Reading Improvement Program during the Fall semester, 1968. Completion of the program included taking all pre-tests, attending the classes, and taking all post-tests.
4. Terminator (or Group T). A first semester freshman student (or students) who completed all phases of the Oklahoma State University Reading Improvement Program during the Fall semester, 1968, except for attending classes during and/or before the final week of the program and taking the post-tests.
5. CTP. California Test of Personality. Only the Personal Adjustment section of Form AA was used.
6. ACT. American College Test.
7. N-D. Nelson-Denny Reading Test. Form A was used for this study.
8. GPA. Grade point average. Based upon the A = 4.0 system as used at The Oklahoma State University.

Assumptions and Limitations

The following are some of the assumptions necessary for the fulfillment of this study:

1. Testing instruments used for the study are both reliable and valid for the variables they were intended to measure.
2. The self-concept is a valid and measurable aspect of personality.

3. Reading abilities and academic abilities are measurable.
4. The sample is appropriate in size and in characteristics to warrant the analysis given.
5. Uncontrolled variables are randomly distributed.

The following limitations are present in the study:

1. The study is limited to first semester freshmen enrolled in Educ. 1220, Reading Improvement, at The Oklahoma State University, during the Fall semester, 1968.
2. The findings are based upon the specific items in the testing instruments.
3. Not all possible variables are being studied or controlled.

Significance of the Study

It is hoped this study will be useful in organizing the learning experiences for college reading improvement programs. Significant results from this study might indicate the student not only needs help in the reading skills, but may also need help in the development of his self-concept, both as a reader and a student and in other aspects.

New emphasis on the diagnosis of student needs might be placed on the psychological aspects of the student. If these variables are affecting reading achievement, it would be well to determine means of identifying these needs in students.

If, in the diagnostic process, variables are found in specific students which could affect their performance in the reading program, these factors might be used as a screening device for acceptance into the program. Those students who are low in the necessary

characteristics might be more profitably given help in developing the needed characteristics before entering the reading program.

Wood (1961) has suggested attrition in non-credit college reading courses might be used as a means of program evaluation. Students may discontinue their attendance because of factors inherent in the course. In other words, the student might drop out of the reading course, not because he feels a reading course would not help him, but because he feels this particular course is not meeting his reading needs.

This study will also add to the theoretical body of knowledge concerning self-concept. The results of this research could lend evidence to the credence or lack of credence of self-concept theory.

Organization of the Thesis

Chapter I has introduced the problem which was studied. Included were the hypotheses to be tested, definitions of major terms, assumptions and limitations of the study, and the significance of the study.

The remaining chapters will elaborate on the research background, method, results, and conclusions of the study. Chapter II will review theories and research related to the problem. Chapter III will describe the sample and instruments and will present the procedure followed in the study. The statistical results appear in Chapter IV, while the conclusions of the study and recommendations for further study are presented in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter of the report is designed to present the research and theoretical background related to the topic under study. The first area reviewed is that of the effectiveness of non-credit college reading improvement programs. It is not the intention of this section to review the success of every college reading program. Only a few of the more recent programs are mentioned, with special emphasis upon the reading improvement program at Oklahoma State University.

The second section is concerned with theory related to attrition. The self-concept theory of Rogers (1951) has been summarized. The theory of attrition postulated by Roth (1961) is then outlined. Factor-analytic studies of self-concept are also presented.

The next section is concerned with the relationships found between self-concept and reading achievement. Specific emphasis has been placed on studies which used college-age subjects.

The problem of attrition in college reading programs is reviewed last. A look is taken at some of the typical attrition rates reported. This is followed by some studies which have attempted to define variables related to attrition.

Effectiveness of College Reading Programs

Entwisle (1960) reviewed the effectiveness of a number of study-skills courses offered by various colleges and universities. Most of these courses offered reading instruction as one of their main objectives. All programs indicated gains in GPA as well as in areas of reading and study skills.

An evaluation of a non-credit reading program offered at the University of Kentucky was made by Rose (1964). The reading course was taught by counselors who were not skilled reading specialists. Reading training was primarily accomplished through the Science Research Associates Laboratory IVa materials. Results of each of three semesters were evaluated. In the first semester, the 10 students who completed the course made significant gains in the area of comprehension, and the gains in reading rate approached significance. The second semester data of the 16 students who had pre-test and post-test results showed significant rate gains, and comprehension gains which approached significance. Vocabulary gains were not significant for either of the two groups. Both reading rate and comprehension gains were significant for the 50 students in the third semester course. Vocabulary was not measured. Rose concluded the gains from the reading course were sufficient to encourage continuation of the program. It was also noted these results were obtained under the guidance of persons inexperienced in the teaching of reading.

The reading and study skills course offered to freshmen enrolled in the College of Education at the University of Maine was evaluated by Olson, Sanford, and Ohnmacht (1964). The Nelson-Denny Reading Test was used for analysis of reading growth. Freshmen who were in the reading

class were found to be significantly lower in pre-test scores than a comparable control group. After a course which emphasized reading films, reading workbooks, study skills, and college orientation, the freshmen in reading and study skills were found to have scores in reading rate and comprehension which were not significantly different from the control group. The control group continued to be better than the experimental group in vocabulary and total reading ability. Pre-test scores were then used as covariables in an analysis of covariance. This analysis indicated significant post-test differences in favor of the experimental group in the areas of comprehension, total score, and reading rate.

Using students enrolled in the reading improvement program at Oklahoma State University, Ray (1962) studied immediate and retained gains in reading. Using the Nelson-Denny Reading Test, the gain in reading from the beginning to the end of the program was significant for all sub-tests; vocabulary, comprehension, total score, and reading rate. Retesting of one portion of the subjects three months after the end of the reading program showed no significant change in any of the reading scores since the post-test. Retesting of a second group six months after the end of the course indicated significant gains since the post-test in the areas of vocabulary and reading rate. Another aspect of the study found no significant differences in gain scores in reading between those students scoring below the median of the experimental sample for the pre-tests and those scoring above the median.

Belden and Ray (1965) found consistent reading gains in all areas of the Nelson-Denny test given to two groups of students. Both groups had completed the reading improvement program at Oklahoma State

University, but had done so at different times. The make-up of the groups ranged from college freshmen to graduate students.

Reading gains from the Oklahoma State University reading improvement course were found to be retained over a five semester period following the end of the reading course. Stebens (1967) also found significant gains in reading ability during this same five semesters. Significant gains in vocabulary, total reading ability, and reading rate were found for the experimental group, who had taken the reading improvement course, and a control group, who had not taken the course. Reading was measured by the Nelson-Denny Reading Test. Stebens found the initial gains within the reading group led to a change in academic performance in social science classes and overall academic performance. Increases were also found in English, mathematics, and natural science courses, but the gains were not statistically significant.

A comparison of reading gains by groups varying in initial reading ability was made by Ray and Martin (1967). Subjects used were two groups of students who had taken the reading improvement course at Oklahoma State University at different times. The subjects were divided at the group median into a low reading ability group and a high reading ability group. Division was based upon Nelson-Denny pre-test scores. No significant difference in gain scores was found between the low reading ability group and the high reading ability group, indicating the reading course was beneficial to students at all levels of initial reading ability.

Miller (1967) made a study of two approaches to college reading improvement. Subjects for the experimental group were randomly chosen from students enrolled in reading improvement classes at Oklahoma State

University. The experimental group was given a self-improvement program of reading, while the control group received the traditional classroom approach. Both groups showed improved scores in reading as measured by the Nelson-Denny. The experimental group made significantly greater gains in reading rate than did the control group. A sub-analysis was made between freshmen education majors enrolled in reading improvement classes and freshmen education majors not enrolled in reading improvement classes. The group enrolled in reading made significantly greater gains in all three areas of analysis; vocabulary, comprehension, and reading rate.

It can be seen that the success of college reading improvement programs, for those students who complete them, is quite apparent. Olson, Sanford, and Ohnmacht (1964), Ray (1962), Belden and Ray (1965), Stebens (1967), Ray and Martin (1967), and Miller (1967) all reported significant gains in reading. Rose (1964) indicated reading improvement could be attained even with inexperienced instructors. Ray (1962) and Stebens (1967) stated that gains in reading were retained beyond the end of the course, and even increased in some cases. Ray and Martin (1967) found no significant differences in reading gains between students initially low in reading ability and students initially high in reading ability.

Grade point averages have also been effected by participation in reading improvement programs. Entwisle (1960) found this to be true in her review of reading and study-skills courses. Stebens (1967) reported an increase in overall academic performance, as well as significant improvement in social science courses.

Theoretical Background

Rogers' Self Theory

The self-concept theory developed by Rogers (1951) seems to be applicable to studies related to academic and reading achievement. Rogers' theory stresses the individual's perceptual field. Reality for the individual consists of his perceptions, and behavior is based upon that view of reality. Part of this perceptual field becomes differentiated as the "self," which is formed through the person's own experiences and the evaluations others make of him. As the self develops, most of the individual's perceptions and behaviors become consistent with this self-picture. Tension occurs when the behavior expected in a situation is not consistent with the self-concept. Such behavior can only be expressed in a non-threatening situation and such non-threatening situations allow the individual to readjust his self-concept. A more detailed review of Rogers' theory is presented in Appendix A.

Roth's Theory of Voluntary Remedial Reading Programs

Based upon a previous study (Roth, 1959), Roth (1961) has developed a very interesting theory of reading programs of a non-credit, voluntary nature. The central variable of the theory is self-concept. Roth feels if remedial reading programs do not pay careful attention to the student's views of himself as a student, a reader, and a person, the programs are likely to fail. They would not be adequately meeting the needs of their students.

Roth bases his argument around the defense mechanisms employed by the student. He found in his 1959 study that the group who dropped out of the course before its completion **was more defensive** than either a low achievement group or a high achievement group. He concludes that an individual's self-concept has a definite relationship to how he performs in a voluntary remedial reading program.

Roth has suggested that students will enter reading improvement programs with different motivations. Those who desire to improve their reading will tend to do so under either structured or unstructured programs. Those students who are motivated solely to failure or to success, so as to maintain self-concepts, are likely to achieve only these goals in a structured program. In an unstructured program, these same students will develop feelings of anxiety at the prospect of having to change their self concepts. If they are not given the opportunity to relieve this anxiety, they will tend to drop out of the program. If they are given opportunities to assess their motives, they are most likely to restructure their self-concepts. Appendix A contains a discussion of 15 propositions presented by Roth (1961) as explanations for his theory.

Factor Analysis of Self-Concept Measurements

Smith (1960) gave a self-concept instrument to 120 adult male psychiatric patients. The instrument was a rating scale of 70 bipolar adjectives chosen from various self-concept scales. Seven factors were generated, five of which were interpreted. The factors which were interpreted are as follows:

Factor I (self-esteem) is a broad evaluative dimension characterized at the positive pole by success and satisfaction with life's affairs.

Factor II (anxiety-tension) is defined by feelings of tiredness, emptiness, fear, and confusion.

Factor III (independence) appears related to subjectively perceived intelligence and leadership ability. The opposite pole may represent passive acceptance, conformity, and felt inadequacy and inability to lead.

Factor IV (estrangement) is characterized by feelings of distance and artificiality versus a natural and easy relationship with others.

Factor V (body image) . . . is defined by adjectives related to body size and physical strength or potency . . . (1959, p. 191).

A factor analytic study of self-concept by Piers and Harris (1964) found similar factors. The analysis was made on data from 457 sixth grade students. The instrument used statements, derived by Jersild (1952), of children's likes and dislikes about themselves. To create the instrument, a total of 164 items were given to 90 third, fourth, and sixth-grade students. Each statement was to be answered "yes" or "no" depending on whether the statement was true for the child or not true. After analysis with these and other children, 84 items were dropped from the scale.

The remaining 80 items were added to the variables sex and birth order, and the factor analysis was made. Over 40 percent of the variance was associated with 10 factors, six of which were interpreted. The following are the factors, in order of magnitude, along with some examples and their loadings.

II. Behavior. I do many bad things (.66); I am disobedient at home (.64); I am often in trouble (.60); I think bad thoughts (.55); I can be trusted (-.53).

I. General and Academic Status. I am good in my schoolwork (-.66); I am smart (-.63); I am dumb about most things (.56); I am a good reader (-.55); I forget what I learn (.53).

VI. Physical Appearance and Attributes. I am goodlooking (-.74); I have a pleasant face (-.61); I have a bad figure (.56); I am strong (-.41); I am a leader in games and sports (-.40).

III. Anxiety. I cry easily (-.57); I worry a lot (-.57); I am often afraid (-.55); I get nervous when the teacher calls on me (-.54); I am nervous (-.49).

IV. Popularity. People pick on me (-.62); I am among the last to be chosen for games (-.61); It is hard for me to make friends (-.56); I have many friends (.55); I feel left out of things (-.49).

X. Happiness and Satisfaction. I am a happy person (.65); I am unhappy (-.62); I like being the way I am (.60); I wish I were different (-.57); I am cheerful (.42) (1964, p. 95).

Table I gives a comparison of the factors found in the two studies just reviewed. There were distinct differences in instruments, statistical treatments, and size, age, sex, and mental health of the subjects. Despite these differences, the factors obtained were strikingly similar. The only factor which did not seem to be present in both studies was Piers and Harris' Factor II, Behavior. It might be possible this factor would match with one of the two factors Smith did not interpret.

It would appear Rogers' (1951) theory on self-concept might be studied as a variable involved in attrition in college reading courses. Roth's (1961) Theory of Voluntary Remedial Reading Programs extends the idea of self-concept to the area of reading achievement. Smith (1960) and Piers and Harris (1964) factor analyzed two self-concept measurements and found five and six significant factors, respectively.

TABLE I
APPARENT RELATED FACTORS BETWEEN FACTOR
ANALYSIS OF TWO SELF-CONCEPT MEASURES

Related Factors	Smith's Factors	Piers and Harris' Factors
A	I. Self-esteem	X. Happiness and Satisfaction
B	II. Anxiety-tension	III. Anxiety
C	III. Independence	I. General and Academic Status
D	IV. Estrangement	IV. Popularity
E	V. Body Image	VI. Physical Appearance and Attributes
Other Factors	Two uninterpreted factors	II. Behavior

Self-Concept and Reading Achievement

It would seem to be a logical extension of self-concept theory to apply such theory to the field of reading achievement. The student who holds a concept of himself as a "good reader" should be found to participate often in the reading act and should be found to profit most from efforts toward reading improvement. Conversely, the student whose self-concept is as a "poor reader" would be expected to participate only minimally in reading and would tend to reject efforts toward improving his reading.

Research has been done to extend self-concept theory into the area of reading achievement. Moffett (1961) used seventh-graders as subjects in a study which explored the relationship between self-concept and reading ability. Using the Wechsler Intelligence scale as a control for intelligence, there was no significant correlation found between reading scores on the Iowa Silent Reading Tests and the self-perception scores on the Bill's Index of Adjustment and Values. Similar correlations between the reading scores and self-perception as measured by the California Test of Personality were significant. A relationship between self-perception and reading achievement was concluded to exist.

Three aspects of the self-concept were studied by Henderson, Long, and Ziller (1965). They felt the aspects of differentiation, esteem, and individualism would relate to reading ability. Forty-eight students, age 7 to 14, and ranging from one to six years below their expected reading level, were matched by age, intelligence, and sex, to achieving readers. Reading scores were taken from the Sequential Tests of Educational Progress. The investigators found no significant differences between the achievers and non-achievers in relation to differentiation and esteem. Achievers did indicate significantly more independence.

Roth (1959) used reading improvement as a measure of achievement in a study of the relation between achievement and self-concept. Fifty-four freshmen at the University of Texas, who were enrolled in a reading improvement program, were used as subjects. The subjects were given Q-sorts and a sentence completion test, both which used the same 80 statements, but in different forms. Four areas of self-concept were explored; Self as a Self, Self in Relation to Authority, Self as a

Student, and Self as a Reader. Three groups of subjects were defined; Improvers, Non-improvers, and an Attrition group. The Improvers were most concerned with the Student and Reader aspects of self-concept. The Non-improvers indicated Self as a Self to be of greatest concern. The Self and Student aspects of self-concept were most indicative of the Attrition group. The attrition group also showed the greatest general defensiveness. Further results of this study are reviewed in the next section.

The Diagnostic Reading Inventory (DRI), developed by Raygor, Vance, and Adcock (1959), was designed to discriminate between able college readers and poor college readers in terms of emotion and attitude toward reading. The DRI was developed from statements made about reading by 67 students enrolled in the University of Minnesota Educational Skills Clinic. From the original 781 statements, 285 were made into a true-false questionnaire. Judges rated the statements as to whether they were descriptions of ability, descriptions of attitude, or neither. Ninety-eight items met perfect agreement for ability, and 76 for attitudes and emotions. The DRI and the Diagnostic Reading Test were given to 68 new students. Both types of self-report questions were found to correlate significantly with reading ability.

Changes in self-attitude, as a result of a college reading improvement course, were found by Englander (1960). Englander developed a 20-question, multiple choice scale for the evaluation of student attitudes. Question stems were used initially on an open-ended basis. Five alternatives for each of the question stems were derived from the answers given in the open-ended statements. The five alternatives for each question were ranked from the most positive to the most negative

attitude. The differences between the attitudes at the beginning of the course and at the end of the course were then measured. The results of the 46 students showed favorable improvement in the areas of self-concept in reading, attitudes toward reading, and self-concept in studying. Attitudes toward school were found to be better at the beginning of the course. There were no significant changes found in a control group.

Wright and Lazaraton (1963) used a form of the I-E Scale (Liverant and Scodel, 1960) in their study of attrition in college reading programs. The I-E Scale measures whether a person feels his behavior is more under external control or more under internal control. Subjects were freshmen students enrolled in the reading program at DePauw University. Results showed the attrition group to be lower on external control, indicating the attrition group felt they could develop reading skills better on their own. Further results of this study are given in the next section.

Brunkan and Shen (1966) compared self-descriptions given by efficient, effective, and ineffective readers. The Reading Versatility Test and the Adjective Check List scores of 321 first semester freshmen at Marquette University were analyzed. The efficient and effective readers with high reading rates described themselves as self-confident, dominant, exhibitionistic, autonomous, and as possessing verbal ability. They were low on succorance, abasement, deference, and counseling readiness. These traits were seen by the authors as being desirable for good adjustment. Ineffective readers with low reading rates were found as generally opposite in characteristics to the efficient and effective, high rate readers. Readers with abilities between these

two groups were generally found to also have characteristics between the two groups. Brunkan and Shen conclude that the better reader is also generally better adjusted.

The difference between the hours per week a student studied and the estimate by that student of the time spent by students with a 3.5 GPA was used by Darby (1966) as a measure of self-concept. Students enrolled in the Reading and Study Skills Laboratory at the University of Maryland were the subjects. No difference in self-concept was found between the 39 students who had been referred to the reading program and the 52 students who were self-initiated.

Some of the studies just reviewed (Henderson, Long, and Ziller (1965), Raygor, Vance, and Adcock (1959), Brunkan and Shen (1966), Moffett (1961)) found self concept to have influenced the past reading ability of the students, before they entered a special reading program. Other studies, such as Roth (1959) and Wright and Lazaraton (1963), showed self-concept to be related to the gains made in reading improvement programs. Englander (1960) found reading achievement affected the self-concepts of the students who participated in the reading course.

Attrition in College Reading Programs

The rate of attrition in non-credit college reading improvement courses has generally been high. Wright and Lazaraton (1963) reported the attrition rate in the reading program at DePauw University to be between 35 and 40 percent. In their study on attrition, 19 students dropped the course while 26 remained, a 42 percent dropout rate.

Attrition was defined as not attending after the fifth week of the seven week course.

The Reading Clinic Program at the University of Pennsylvania had 20 out of 91 students fail to complete its course in the 1958-59 academic year (Schneyer, 1963). This was an attrition of almost 22 percent.

Over a two-year period, Wood (1961) found an average of 22 percent of the students who enrolled in a reading improvement course at the University of Michigan did not complete the course. The University of Michigan course is a seven-week, non-credit, voluntary program. In 1955, Wood also received information from 63 other colleges with reading programs, and found the University of Michigan results to be similar to the results of the other programs. Lowest attrition seemed to occur when credit had been given for the courses. During a study of attrition by Wood, a drop-out rate of over 14 percent was found.

Raygor (1959), in an earlier study done at the University of Michigan, had 144 subjects begin the reading and study skills program. One hundred and eighteen subjects completed the course. This was an attrition rate of 18 percent.

A number of studies done on the reading improvement course at Oklahoma State University have found similar results with respect to attrition. Ray (1962), reporting on the enrollment for the first half of the Fall semester, 1961, noted 98 of 196 failed to complete the course. Enrollment for the second session, during the second half of the same semester, showed 50 of 129 dropped the course. The above drop-outs included students who enrolled for the course but did not attend any of the class sessions.

Stebens (1967) states that 393 students enrolled for the Oklahoma State University reading improvement program for the Fall semester, 1963. Of these students, 87 failed to complete the course. As in the Ray (1962) study, many of those who were listed as drop-outs never attended any class sessions.

In a study of a self-improvement program for reading development, Miller (1967) found that, of 99 subjects who were included in the initial sample for the control group (traditional reading program), 71 completed the course. For the experimental group (self-improvement reading program), 92 began the course and 71 remained in the program at its completion. The traditional approach had an attrition rate of better than 28 percent, while the self-help approach had an attrition rate of slightly less than 22 percent.

Using only freshmen students who were referred to the reading program at DePauw University, Wright and Lazaraton (1963) studied attrition rate. They found that within this group of 45 students there were personality differences varying according to whether the students finished the course or dropped out before completing the course. The DePauw University reading improvement class was offered for eight weeks on a non-credit basis. Those who completed the course tended to have less confidence in their own ability and seemed to be more externally controlled as measured by the I-E Scale. No significant differences were found for first semester GPA, high school class rank, the Scholastic Aptitude Test's verbal and mathematics subscales, or the vocabulary, comprehension, and speed of comprehension sections of the Cooperative Reading Test. Wright and Lazaraton concluded that those students who dropped the reading improvement course felt the

course was not helping them adequately, while those students who stayed in the course seemed to have less confidence in their abilities.

The attrition group, in a study by Schneyer (1963), showed a non-significant tendency toward lower motivation than those students who completed the course. This result was found through "study-attitudes" scores on the Brown-Holtzman Survey of Study Habits and Attitudes.

They were also low on the "study-mechanics" and total score on the Brown-Holtzman. The attrition group consisted of 20 students who failed to take the final tests in the Reading Clinic Program at the University of Pennsylvania. Schneyer was attempting to find factors related to student performance in college reading improvement courses. Other results showed the attrition group to have a mean score between that of the high improvers and that of the low improvers on the verbal aptitude section of the Scholastic Aptitude Test (SAT). The mathematical aptitude scores on the SAT were highest for the attrition group. The total SAT score for the attrition group was between the high and low achievers. On reading tests, the attrition group had the lowest rate and lowest comprehension, as measured by the Diagnostic Reading Test and the SRA Better Reading Book 3. Grade point averages for the academic year in which the students were enrolled in reading found the attrition group had the lowest GPA, but not significantly lower than the high and low improvers.

Personality factors in the Schneyer (1963) study were measured by the SA-S Senior Scale and the Inventory of Beliefs. On the SA-S Senior Scale the attrition group was found to be the most permeable and the most anxious of the groups studied. The author concluded none of the

personality or academic factors was sufficiently significant to differentiate between individual students.

Wood (1961) found no personality differences between a group of "dropouts" and a group of "remainers." The study was designed to determine if attrition could be used as a measure of worth of non-credit college reading courses. The study sample was taken from 701 students enrolled in six or seven week reading programs at the University of Michigan. On the subscales of the 16 P.F. Test and the SA-S Senior Scales, only one difference was found with a $P < .05$. Since one difference of such magnitude could be expected to occur by chance in the 18 comparisons made, the one large difference was concluded to be non-significant.

With the same students, Wood found significant differences with respect to class subgroups and time of class. Rate of gain and ratings of instructors approached significance. The experience of the instructor was not significant. Reasons for dropping the course, as stated by the drop-outs, included "pressure of other activities (42 percent), dissatisfied with the course (27 percent), and miscellaneous (31 percent)."

Roth (1959) divided 54 University of Texas freshmen enrolled in non-credit reading improvement classes into improvers, non-improvers, and those who failed to finish the course. He hypothesized there would be self-concept differences between these three groups. Self-concept measures were given both before and after the course. The measures of self-concept included a Q-sort of 80 statements and a sentence completion test using statements designed from those used in the Q-sort. Four self areas were determined from the statements: "Self as a Self,

Self in Relation to Authority, Self as a Student, and Self as a Reader." Intentional and extentional orientations were also rated. The attrition group appeared to be most defensive in relation to Self as a Self, Self as a Reader, and General Defensiveness. They were middle in defensiveness related to Self as a Student. No differences were found with Self in Relation to Authority.

In the same study, Roth observed a number of academic variables. These included academic potential (American Council on Education Psychological Examination), English (The Cooperative English Test), vocabulary and reading effectiveness (Diagnostic Reading Test), and GPA's both before and after the course. The non-improvement group had the highest achievement scores of the three groups. The attrition group had the lowest initial and final GPA. The improvers were the only group to drop in GPA. Their final GPA was similar to the final GPA of the attrition group.

The above reviews show attrition to be a significant problem in college reading improvement courses. Drop-out rates from 15 percent to 50 percent were reported. Studies of variables related to attrition found significant areas concerning personality, motivation, verbal aptitude, reading ability, and self-concept. The current study has used different instruments in many of these areas in order to replicate and expand previous results.

Summary

A review on the effectiveness of college reading programs found the students who enrolled in the reading programs generally made significantly greater gains in reading than comparable groups of

students not enrolled in the reading classes. Gains were reported in comprehension, vocabulary, and reading rate. These gains were found to persist beyond the end of the reading course. Results of reading courses also included improvement in GPA and in attitudes.

In spite of these results, many students enrolled in the reading improvement programs drop out of the classes before completion. Two theories were explored which might help understand this problem; Rogers' (1951) Self-Concept Theory and Roth's (1961) Theory of Voluntary Remedial Reading Programs.

Rogers offers a good summary of his own theory.

This theory is basically phenomenological in character, and relies heavily upon the concept of the self as an explanatory construct. It pictures the end-point of personality development as being a basic congruence between the phenomenal field of experience and the conceptual structure of the self--a situation which, if achieved, would represent freedom from internal strain and anxiety, and freedom from potential strain; which would represent the maximum in realistically oriented adaptation; which would mean the establishment of an individualized value system having considerable identity with the value system of any other equally well-adjusted member of the human race (1951, p. 532).

Roth (1961) states that students entering a reading program may have two types of motivation. One is to improve reading ability; the other is to maintain self-concepts. Those with the latter motivation want to show either that they can succeed in the program or fail in the program. A structured program will aid this type of student in meeting his goals. An unstructured program will lead to anxiety which will lead the student to drop the course if not resolved. Helping the student at this time will allow him to reassess his motives and change his self-concepts.

Factor analytic studies of self-concept have found five or six major factors to be involved. As noted by Smith (1960) they are:

1. Self-esteem
2. Anxiety-tension
3. Independence
4. Estrangement
5. Body Image

The findings of studies which had previously explored the relationship between self-concept and reading achievement were then reviewed. Self-concept was found to have influenced reading ability before the student entered the reading program, as well as affecting performance within the program. It was also reported that the reading course has an effect on self-concepts.

A review of studies of attrition in college reading improvement programs generally indicated a high rate of attrition in many programs. A number of personality and educational variables were found to be related to attrition.

CHAPTER III

METHODS AND PROCEDURES

Introduction

A major portion of this study was undertaken within the reading improvement program at Oklahoma State University. The following chapter describes the reading improvement program and the students chosen for study which were enrolled in that program. Also discussed are the instruments used for the measurement, the procedures for administering the instruments, and the treatment of the data from the instruments.

The Oklahoma State University

Reading Improvement Program

The reading improvement program at Oklahoma State University is a voluntary, non-credit course open to all students of the university who feel in need of its services. Students may be referred to the course by their instructors or advisors, told about the course by friends, or seek out the course themselves because of felt needs in reading. The student classifications range from freshmen to graduate and from every college of the university. A twenty-dollar fee is charged for participation in the course.

Reading classes are offered each semester in the academic year and in the summer session. Twenty sections of reading improvement were

offered for the Fall semester, 1968, 18 of which had sufficient enrollment to continue being offered. Each class met for one hour each Monday, Wednesday, and Friday, starting September 9 and ending December 20. This allowed a total of 44 class hours for the course. Approximately four to six hours of this time was spent on diagnostic and research testing.

The purpose of the reading improvement program at Oklahoma State University is to help each student develop those reading skills of which he has need. Emphasis is placed on vocabulary development, techniques of comprehension, rate of reading, and flexibility of approach to reading.

Purposes of the course are put into practice through diagnostic testing, both initially and throughout the course, followed by each student practicing the techniques of reading most needed by that student. The basic materials used for practice are:

- A. Controlled Reader -- The Controlled Reader material consists of a series of reading exercises which vary in vocabulary level and concept level. These filmstrips may be projected at varying speeds for the improvement of reading rate. The filmstrip is preceded by a vocabulary and study skills preview, and is followed by a comprehension check.
- B. SRA Laboratory IVa -- The reading laboratory contains cards for development of vocabulary, comprehension and reading rate. The student is to progress at his own rate through a series of reading levels.

- C. Paperback Books -- These books are used for practice in reading rate and to develop interest in reading. Each student selects his own book.
- D. Listening Records and Tapes -- Information concerning vocabulary development, comprehension skills, and various study techniques are given to the students through combined visual-auditory approach. The listening materials can serve as informal lecture, but on an individual or small group basis.
- E. Various Workbooks and Materials -- Exercises in vocabulary, comprehension, reading rate, study skills, and other areas are made available to students according to individual needs.

Course instruction is basically on an individual or small group basis. Graduate assistants in the field of reading serve as instructors. Once the use of materials are explained, the program becomes essentially one of student practice and self-diagnosis with guidance from the instructors.

At the end of the program, final reading test results are made available to the students, and a record of progress is sent to each student's academic advisor.

Sample and Population

The sample for this study was chosen from the Oklahoma State University Reading Improvement Program, stated in the Oklahoma State University Catalogue (1968) as Educ. 1220, Reading Improvement. The Oklahoma State University program was deliberately chosen because of its accessibility to the researcher.

Only first semester freshmen students who were enrolled in the reading improvement program in the Fall semester, 1968, were considered for the present study. It was assumed that using only first semester freshmen would allow for greater homogeneity between the comparison groups, and would also eliminate any variation in results due to prior college experiences.

Each subject in the sample was to have scores available at the University Counseling Center on the Nelson-Denny Reading Test (N-D) and the American College Test (ACT). All subjects who did not meet the three conditions listed above were eliminated from consideration in the statistical analysis of data. All students enrolled in the reading program continued to take the instruments of the study, though. This was done so as not to single out any group of students and to lessen the possibility of Hawthorne effect. The only other subjects eliminated from the study were those who dropped out of school. It was felt that if these subjects were included as part of Group T they would possibly add error variance, since their reasons for terminating attendance in the reading course may have been because of circumstances not related to the variables under study.

To control for further undesired variance, the statistical analyses were run separately for males and females. For the final analysis, there were 109 males and 78 females in Group A, and 68 males and 42 females in Group T.

Since no randomization schemes were used, the sample also defines the population. This would limit the results of the study, then, to the 297 first semester freshmen enrolled in Educ. 1220, Reading Improvement at Oklahoma State University during the Fall semester, 1968,

who had ACT and N-D scores available and who did not drop out of school during the semester. Although this would be the only population to which the results of this research would apply, it would be hoped the conclusions reached herein might be found profitable for use with populations in other semesters and other years in the Oklahoma State University Reading Improvement Program, as well as to other colleges and universities which offer a non-credit reading improvement course.

Instruments

In determining the choice of instruments to be used in the study, a number of criteria were considered. The instruments needed foremost to be valid measures of the variables to be tested. Secondly, the tests needed to be applicable to college freshmen. Thirdly, it was hoped the instruments would be relatively easy to administer and to score. Lastly, it was hoped the instruments would be readily available. Four major instruments were chosen which met those criteria.

California Test of Personality, Secondary Series

The CTP was devised by Thorpe, Clark, and Tiegs (1953) as an instrument for diagnosis of student problems in personal and social adjustment. The instrument was first developed in 1942, and was revised in 1953. The test is published by California Test Bureau.

There are two basic sections to the CTP. They are "Personal Adjustment" and "Social Adjustment." These two sections are each made up of six subsections. A total adjustment score is achieved by summing the scores of all 12 subsections. Only the Personal Adjustment section was used for this study. The following are the six subsections

of the Personal Adjustment section, along with a brief description of each.

1A. SELF-RELIANCE--An individual may be said to be self-reliant when his overt actions indicate that he can do things independently of others, depend upon himself in various situations, and direct his own activities. The self-reliant person is also characteristically stable emotionally, and responsible in his behavior.

1B. SENSE OF PERSONAL WORTH--An individual possesses a sense of being worthy when he feels he is well regarded by others, when he feels that others have faith in his future success, and when he believes that he has average or better than average ability. To feel worthy means to feel capable and reasonably attractive.

1C. SENSE OF PERSONAL FREEDOM--An individual enjoys a sense of freedom when he is permitted to have a reasonable share in the determination of his conduct and in setting the general policies that shall govern his life. Desirable freedom includes permission to choose one's own friends and to have at least a little spending money.

1D. FEELING OF BELONGING--An individual feels that he belongs when he enjoys the love of his family, the well-wishes of good friends, and a cordial relationship with people in general. Such a person will as a rule get along well with his teachers or employers and usually feels proud of his school or place of business.

1E. WITHDRAWING TENDENCIES--The individual who is said to withdraw is the one who substitutes the joys of a fantasy world for actual successes in real life. Such a person is characteristically sensitive, lonely, and given to self-concern. Normal adjustment is characterized by reasonable freedom from these tendencies.

1F. NERVOUS SYMPTOMS--The individual who is classified as having nervous symptoms is the one who suffers from one or more of a variety of physical symptoms such as loss of appetite, frequent eye strain, inability to sleep, or a tendency to be chronically tired. People of this kind may be exhibiting physical expressions of emotional conflicts (Thorpe, Clark, and Tiegs, 1953, p. 3).

Test development started with over 1000 adjustment situations.

These were evaluated, dropped, or changed by expert psychologists.

Ratings of question level and appropriateness were then made by professional educators and testors. The remaining items for each level

were given at the appropriate levels to approximately 100 students for their evaluations. Correlations between teacher ratings and scores for 100 new students at each grade were made on the remaining items.

Further testing led to reducing the categories from 16 to 12. For the secondary series, the best 15 questions were chosen for each category.

Reliability of the CTP was tested by reliability coefficients, using the Kuder-Richardson formula, and standard error of measurement. Both measures are given in Table II.

TABLE II
RELIABILITY COEFFICIENTS, CALIFORNIA TEST OF
PERSONALITY--SECONDARY (Thorpe, Clark, and
Tiegs, 1953, p. 5)

Components	Form AA	
	r	S.E. Meas.
1. Personal Adjustment	.90	3.72
A. Self-reliance	.70	1.64
B. Sense of Personal Worth	.77	1.20
C. Sense of Personal Freedom	.84	1.00
D. Feeling of Belonging	.91	.75
E. Withdrawing Tendencies (Fdm.)	.86	1.31
F. Nervous Symptoms (Fdm.)	.82	1.49

Concerning validity, Sims (1959) pointed out two factors on which the validity of the CTP revised edition was based. The first factor was the care of construction, or content validity. The second factor was the usefulness of the first edition, both clinically and in research. This would include both concurrent and predictive validity.

In the CTP Manual, Thorpe, Clark, and Tiegs (1953, p. 7) mentioned the test has different validity based upon the purposes for which it was created and is used. One purpose which they listed was that of research. They pointed out a number of cases in which the CTP has been successfully used as a research instrument. Such research findings could give evidence of either concurrent or predictive validity, based upon the design of the research.

The choice of the CTP, Personal Adjustment section, as a measure of self-concept was based on a number of factors. Strong and Feder state that, "Every evaluative statement that a person makes concerning himself can be considered a sample of his self concept, from which inferences may then be made about the various properties of the self concept" (1961, p. 170). Sims, in a review of the Revised CTP for Buros' Sixth Mental Measurements Yearbook (1959), said, "As a measure of self-concept in the, as of now, vaguely defined area called adjustment, this test is as valid as most such instruments" (1959, p. 100). Sims also added, "All in all, in spite of criticism, as personality inventories go, the California test would appear to be among the better ones available" (1959, p. 103).

Two studies were found which used the CTP, in part or totally, as a measure of self-concept. Butts (1963) reported using the Sense of Personal Worth subsection of the CTP as a measure of self-esteem. The

study was concerned with the self-perceptions of Negro children. Moffett (1961) used the CTP and the Bills' Index of Adjustment and Values as self-concept measures in a study of reading achievement. No significant correlation was found between the Bills scale and reading scores of seventh-grade students. A significant correlation was found, though, between the reading scores and the CTP.

Another factor which indicated the appropriateness of the CTP, Personal Adjustment section as a measure of self-concept was the apparent relationship between some of the subscales of the CTP and the factors of self-concept found from factor analysis. These relationships are shown in Table III.

TABLE III

APPARENT RELATED FACTORS BETWEEN THE CTP, PERSONAL
ADJUSTMENT SUB-SECTIONS AND FACTOR ANALYSIS OF
TWO SELF-CONCEPT MEASURES

CTP Sub-sections	Smith's Factors (1960)	Piers and Harris' Factors (1964)
1A. Self-Reliance	III. Independence	I. General and Academic Status
1B. Sense of Personal Worth	I. Self-esteem	X. Happiness and Satisfaction
1C. Sense of Personal Freedom		
1D. Feeling of Belonging	IV. Estrangement	IV. Popularity
1E. Withdrawing Tendencies		
1F. Nervous Symptoms	II. Anxiety-tension	III. Anxiety

Smith (1960) also reported finding two other factors which were not interpreted. It might be speculated these factors could be related to one or both of the remaining CTP subsections.

Englander Scale

A 16-question scale was devised by Englander (1960) as a measure of attitudes toward reading. The study for which the scale was used was reviewed in Chapter II. The author wanted to determine if any significant change in attitude as a result of participating in a college reading improvement program could be ascertained in students.

Items for the questionnaire were developed from answers given by 100 students to twenty open-ended statements. The students were enrolled in a college reading improvement program. The stems were chosen so as to elicit statements of the students' attitudes toward reading and other areas of school. Using selected answers which had been given to the stems, a multiple-choice scale was created. Five alternative choices were given for each of 16 item stems. The subjects were then asked, for each question, to select the one choice, out of the five possible choices, which indicated his attitude most closely.

Neither efforts toward a full range of choices for attitudes nor toward equal-appearing intervals were made. Test-retest reliability, using a Pearson r , was found to be .98. For the reliability check, 30 students were given the test twice, with a four-week interval between.

Only 3 of the 16 subscales of the Englander scale were used in this study. The three subscales were stated by Englander to measure self-concept in the areas of (a) intelligence, (b) reading ability, and (c) studying. The self-concept as a reader and self-concept as a

student were two of the four significant areas found by Englander (1960) in his study.

Nelson-Denny Reading Test

Both the Testing Bureau and the Reading Improvement Program at Oklahoma State University used the N-D as part of their test battery. Therefore, scores on this test were immediately available for nearly all students.

The N-D was originally published in 1929. In 1960, the test was revised by Brown and republished by Houghton Mifflin Company. The test gives reading scores in three areas: Vocabulary, Comprehension, and Reading Rate. The vocabulary section is made up of 100 items. The student is to complete as many items correctly as he can within a 10-minute time limit. The comprehension section contains 36 questions, which are related to eight reading selections. Twenty minutes are allowed for this part of the test. The first reading selection is longer than the others, and is used to measure reading rate. A total score is also computed by adding the vocabulary score to two times the comprehension score (Brown, 1960).

Test standardization at the college level was based upon 7497 students. Of these, 3023 were at the grade 13 level, which was the level used in this research study. Reliability, using equivalent forms, is given in Table IV. These reliability figures are based upon results using college students at all undergraduate levels (Brown, 1960). The standard errors of measurement for Form A, Grade 13 are given in Table V.

TABLE IV
RELIABILITY COEFFICIENTS
(Brown, 1960, p. 26)

Part	r	N
1. Vocabulary	.93	110
2. Comprehension	.81	110
3. Total	.92	110
4. Rate (initial)	.93	74
5. Rate (after training)	.82	78

TABLE V
STANDARD ERRORS OF MEASUREMENT
(Brown, 1960, p. 27)

Item	Standard Error of Measurement
Rate	25.12
Vocabulary	4.12
Comprehension	5.75
Total	7.67

Correlations between each of the items with the total score were used as a measure of content validity. The validity range for the Revised Form A was 31-71, with a mean of 47.5 (Brown, 1960).

American College Testing Tests

One of the major purposes of the ACT tests is in measuring academic potential. Four tests make up the test battery. They include English usage, mathematics usage, social studies reading, and natural sciences reading. A composite score is computed from the four tests. Scores are reported in standard score form.

The ACT tests are devised and published by the American College Testing Program. Three new forms are developed every year. Reliability is based upon internal consistency, parallel forms, long-term test-retest, and scale intercorrelations. Content and predictability are used as estimates of validity (American College Testing Program, 1965).

Procedures

Data for the study were gathered during the Fall semester, 1968, at Oklahoma State University. As previously noted, one criterion for including a subject in the experimental sample was the availability of results from the ACT and N-D tests. The ACT had been taken by the subjects during the year prior to entering the university. The N-D tests were taken at the Oklahoma State University Testing Bureau at various times throughout the summer. The subjects were also given the N-D during the first week of the course, but the scores from the Summer session were originally chosen so that equivalent test situations would be available for comparisons with a control group. Both the results of the ACT and the N-D were taken from the student record files of the Oklahoma State University Counseling Center.

The CTP and the Englander scale were given to the subjects during the third week of the reading program. The tests were given in the

third week due to the flux of individuals changing class sections, entering the course, and dropping the course because of schedule conflicts or change of plans. Many students also enroll in the course and never appear for class.

The graduate assistants administered the CTP and the Englander scale to the students in their own sections. The scoring of the instruments was done by the researcher. Instructions for administering the instruments and manuals for the CTP were made available to all graduate assistants. A copy of the instructions appears in Appendix B. The CTP was administered first, followed by the Englander scale.

The final tests for the course were given during the week before Christmas vacation. It was felt giving the tests after vacation might lead to spurious results when determining attrition. The N-D test was followed by the CTP and the Englander scale, in order. The N-D was scored by the graduate assistants, while the other instruments were scored by the experimenter. Data for the final N-D test was taken from a ledger used for permanent recording of student results.

It was originally hoped to use the post-test data as well as the pre-test data. Due to errors in the scoring and recording of the N-D tests by the graduate assistants, the results could not be used for analysis. The same tests were also given on a pre- and post-basis to four sections of students in English composition, who were to be used as a control group. But errors in test administration by the instructors, as well as other unexpected factors, rendered the data unusable.

At the beginning of the Spring semester, 1969, first semester college GPA's for the Fall semester, 1969, were gathered for all

subjects. The GPA data was taken from the records of the Counseling Center.

In order to guard against the Hawthorne effect, all students were given the tests whether they were to be included in the experimental sample or not. As a further control, the data were analyzed separately for males and females.

Other factors which could have affected the results of the study included differences between instructors, differences between the time periods in the day, and differences between students who were referred to the reading class by members of the university staff and students who were self-referred. Differences between instructors were not analyzed due to variations in number of sections taught and number of students taught by each instructor. Differences between the periods of the day were not ascertained because two time periods had only one section rather than the normal two. Also, variations in the number of students per time period were great. No attempts were made to report source of referral. One difficulty was determining exactly what constituted a referral.

Some extraneous variance could have resulted from the fact the ACT and N-D tests were taken at a number of different times during the summer and previous year by members of both experimental groups. It could only be assumed that any variance resulting from this situation was randomly distributed within both groups.

It was also assumed that failure of the final portion of the study in no way affected the results of the first part of the study.

Analysis of Data

The purpose of the data analysis was to define significant differences, if any, between the "Attendants" and the "Terminators." Statistical analyses were made for pre-course scores on each of the six subscales of the CTP, Personal Adjustment section, the total score of the CTP, Personal Adjustment section, and three self-concept subscales of the Englander scale. Analyses were also made for ACT scores, first-semester college GPA's, and pre-course N-D subscale and total scores.

Scores of the 109 males in Group A were compared with the scores of the 68 males in Group T. This comparison was separate from that of the 78 Group A females with the 42 females in Group T.

The two instruments used to measure self-concept, the CTP and the Englander scale, were assumed to generate ordinal level data. The scores for the scales of the CTP represent frequencies of appropriate responses. The scores for the Englander scale were stated by Englander (1960) as being only ranks, and that no effort had been made to construct equal-appearing intervals.

For these two instruments, the most appropriate non-parametric statistic seemed to be the Mann-Whitney U Test. Siegel (1956, p. 116) states this test is an adequate alternative to the t test. The Mann-Whitney U test estimates the probability of two independent samples being drawn from a common population. The assumptions necessary for using most non-parametric statistics, according to Siegel (1956, p. 31), are (a) independent observations and (b) an underlying continuity. The power-efficiency of the Mann-Whitney approaches 95 percent when compared with the t test. The formulas used for the Mann-Whitney are given in Appendix C.

The N-D has often been used with parametric statistics, but has been found in some cases to not meet the requirement of homoscedasticity (Miller, 1967). Therefore, non-parametric statistics were applied to the data from the N-D. The Mann-Whitney U was chosen (Siegel, 1956).

With the variable of sex it was important to use a statistic appropriate for the nominal level of measurement. The χ^2 test met this criterion (Siegel, 1956). Siegel (p. 104) states the χ^2 test may be used with discrete categories from which frequencies may be determined. Differences between two independent groups are tested. The χ^2 formula is given in Appendix C.

It was assumed the ACT scores and the GPA's could adequately meet the requirements necessary for parametric statistics. The t test was chosen as being most appropriate (Edwards, 1964). The t formula is presented in Appendix C.

The analysis of the data, when using the Mann-Whitney U, was performed by the computer service at Oklahoma State University. Computation of the χ^2 and t tests were performed by the researcher.

Summary

The Oklahoma State University Reading Improvement Program is a voluntary, non-credit course which is open to all students enrolled in the university. The program stresses development in the areas of vocabulary, comprehension, reading rate, and reading flexibility. The course consists of practice in reading which is guided by the instructor.

Two hundred and ninety-seven students served as the research sample. All subjects were first semester freshmen and all subjects

had scores available on the ACT and N-D tests. The ACT composite score was used as a measure of academic potential. The N-D measured initial reading ability. Two other instruments, the CTP, Personal Adjustment section, and three subscales of the Englander scale were used as measures of self-concept.

The ACT and N-D tests had been given to the subjects prior to the beginning of their reading course. The CTP and Englander scale were given at the beginning of the third week of the reading program. GPA's were gathered after the end of the semester. Attendants or terminators of the course were determined upon whether the students attended classes and took the final tests during the last week of the program or did not do so.

The Mann-Whitney U test was used to analyze the data for the CTP, Englander scales and N-D. The t test was used with the ACT and GPA results. The χ^2 test was used with the variable of sex. Separate analyses were run for males and females on each of the above measurements except the sex variable.

CHAPTER IV

STATISTICAL RESULTS

Introduction

This study was concerned with attrition in a college reading improvement course. The rate of attrition for the subjects in this study was calculated to be 37.0 percent. For the males, there was 38.4 percent attrition, as 68 out of 177 failed to complete the Oklahoma State University Reading Improvement Program. Thirty-eight females terminated their class attendance, while 78 females stayed in the reading program to its completion. The attrition rate for the females was 35.0 percent.

It was the purpose of the research to identify variables related to a high rate of attrition in the non-credit college reading improvement program. The objective of this chapter is to present the statistical analyses of data gathered from 297 subjects enrolled in the reading program at Oklahoma State University. As was noted in Chapter I, two major hypotheses were tested. Hypothesis I was that "there would be statistically significant differences between the self-concepts of the attendants (Group A) and the terminators (Group T)." Ten aspects of self-concept were measured, and separate analyses for males and females were made on each of the ten variables. Hypothesis II was that "there would be statistically significant differences between selected personal and educational aspects of Group A and Group T." Six aspects

were chosen for analysis under this hypothesis. Separate analyses were again made for males and females.

It should be pointed out that the typical confidence levels of .05 and .01 used in most educational research will not be employed in these analyses. Only the computed probabilities of differences for each of the comparisons will be reported. Probabilities which are concluded to be significant will be marked by asterisks. Explanations for acceptance or rejection of the hypotheses will be given in Chapter V.

The results of the statistical analysis for Hypothesis I will be presented first. This will be followed by the results of the statistical analysis for Hypothesis II. Results from both areas will then be summarized.

Hypothesis I: Statistical Analysis of Self-Concept Variables

Two instruments were used as measures of self-concept. One of these instruments was the California Test of Personality, Personal Adjustment section which provides six subscale scores and a total score. The other instrument was the Englander scale. Only the three subscales which measured self-concept were used. The results of both male and female subjects will be given for each subscale.

California Test of Personality

(1) Self-Reliance

A median score of 11.0 was computed for the Group A males on this subscale. The median score for the Group T males was also 11.0. Table VI presents the quartile scores for both groups of males on each

TABLE VI

QUARTILE SCORES FOR GROUP A MALES AND GROUP T MALES
ON THE CTP SUBSCALES

CTP Subscale	Group A Males			Group T Males		
	Q ₁	M	Q ₃	Q ₁	M	Q ₃
1A. Self-Reliance	9.0	11.0	12.0	9.0	11.0	12.0
1B. Sense of Personal Worth	11.0	12.0	14.0	10.0	13.0	14.0
1C. Sense of Personal Freedom	12.0	13.0	14.0	11.5	13.0	14.0
1D. Feeling of Belonging	11.0	13.0	15.0	11.0	13.0	14.5
1E. Withdrawing Tendencies	8.0	11.0	12.0	7.0	10.5	13.0
1F. Nervous Symptoms	8.0	11.0	13.0	9.0	11.0	13.0
Total--Personal Adjustment	63.0	69.0	75.0	62.0	67.0	79.0

of the subscales of the CTP. The Mann-Whitney U test generated a z value of -0.1463 , which is associated with a probability of 0.4418 when the z value is equal to or less than the stated value. With this level of probability, the difference between groups was concluded to have occurred by chance. These results are shown in Table VII, which contains the U values, z values, and probabilities of the differences between the two groups of males on each of the subscales of the CTP.

The Group A females had a median score of 10.0 . A median score of 10.0 was also noted for the Group T females. Table VIII gives the quartile scores for both groups of females on each of the CTP subscales. A z value of -0.6660 was generated from the Mann-Whitney U test. This indicated a probability of 0.2527 of the difference occurring by chance,

TABLE VII

THE MANN-WHITNEY U TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN SCORES
OF GROUP A MALES AND GROUP T MALES ON THE CTP SUBSCALES

CTP Subscales	<u>U</u>	<u>U-Prime</u>	<u>z</u>	Probab.
1A. Self-Reliance	3658.0	3754.0	-0.1463	0.4418
1B. Sense of Personal Worth	3490.0	3922.0	-0.6597	0.2547
1C. Sense of Personal Freedom	3550.5	3861.5	-0.4772	0.3166
1D. Feeling of Belonging	3526.5	3885.5	-0.5503	0.2911
1E. Withdrawing Tendencies	3523.0	3889.0	-0.5544	0.2897
1F. Nervous Symptoms	3454.0	3958.0	-0.7648	0.2222
Total--Personal Adjustment	3576.5	3835.5	-0.3908	0.3480

TABLE VIII

QUARTILE SCORES FOR GROUP A FEMALES AND GROUP T
FEMALES ON THE CTP SUBSCALES

CTP Subscales	Group A Females			Group T Females		
	<u>Q₁</u>	<u>M</u>	<u>Q₃</u>	<u>Q₁</u>	<u>M</u>	<u>Q₃</u>
1A. Self-Reliance	8.0	10.0	12.0	9.0	10.0	12.0
1B. Sense of Personal Worth	12.0	13.0	14.0	12.0	13.0	14.0
1C. Sense of Personal Freedom	11.0	13.0	14.0	12.0	12.0	13.0
1D. Feeling of Belonging	12.0	14.0	15.0	11.0	13.5	15.0
1E. Withdrawing Tendencies	8.0	10.0	13.0	8.0	11.0	13.0
1F. Nervous Symptoms	9.0	11.0	12.0	9.0	11.0	12.0
Total--Personal Adjustment	61.0	70.0	76.0	64.0	69.0	76.0

assuming the null hypothesis to be true. With this probability, the null hypothesis was accepted. Table IX contains the statistical results of the Mann-Whitney U test applied to the scores of the two groups of females on the subscales of the CTP.

TABLE IX

THE MANN-WHITNEY U TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN
SCORES OF GROUP A FEMALES AND GROUP T FEMALES
ON THE CTP SUBSCALES

CTP Subscales	<u>U</u>	<u>U-Prime</u>	<u>z</u>	Probab.
1A. Self-Reliance	1518.0	1758.0	-0.6660	0.2527
1B. Sense of Personal Worth	1559.5	1716.5	-0.4410	0.3296
1C. Sense of Personal Freedom	1558.5	1717.5	-0.4449	0.3282
1D. Feeling of Belonging	1622.0	1654.0	-0.0899	0.4641
1E. Withdrawing Tendencies	1520.0	1756.0	-0.6540	0.2567
1F. Nervous Symptoms	1606.5	1669.5	-0.1748	0.4306
Total--Personal Adjustment	1595.5	1680.5	-0.2340	0.4075

(2) Sense of Personal Worth

The median score of the Group A males was 12.0, while the Group T males had a median score of 13.0. Table VI gives the quartile scores for both groups. A probability of 0.2547 was associated with the z value of -0.6597 generated by the Mann-Whitney U test. The difference

between groups was concluded to be non-significant. Table VII presents these results.

For the females, both Group A and Group B had median scores of 13.0. The quantities for both groups are given in Table VIII. A z value of -0.4410 , from the Mann-Whitney U test, yielded a probability of 0.3296. With this probability, it was assumed the difference between groups occurred by chance. Table IX gives the statistical results for this comparison.

(3) Sense of Personal Freedom

In the comparison of Group A males and Group T males, a z value of -0.4772 was generated from the Mann-Whitney U test. Such a z value relates to a probability of 0.3166, which lead to acceptance of the null hypothesis. These results are presented in Table VII. Both groups had a median score of 13.0, as shown in Table VI.

The females in Group A had a median score of 13.0 on this subsection. The females in Group T had a median score of 12.0. Table VIII gives the quartile scores for both groups. A probability of 0.3282 was found for the difference between the scores of the two groups, the difference then being assumed to have occurred by chance. The probability was determined from the z value of -0.4449 generated from the Mann-Whitney U test. Table IX shows these results.

(4) Feeling of Belonging

A median score of 13.0 was computed for the Group A males on this subscale. The median score for the Group T males was also 13.0. Quartile scores for both groups of males are given in Table VI. The

Mann-Whitney U test generated a z value of -0.5503 , which is associated with a probability of 0.2911 when the z value is equal to or less than the stated value. With this level of probability, the difference between groups was concluded to have occurred by chance. These results are shown in Table VII.

The Group A females had a median score of 14.0 . A median score of 13.5 was noted for the Group T females. Table VIII gives the quartile scores for both groups. A z value of -0.0899 was generated from the Mann-Whitney U test. This indicated a probability of 0.4641 of the difference occurring by chance, assuming the null hypothesis to be true. With this probability, the null hypothesis was accepted. Table IX contains these statistical results.

(5) Withdrawing Tendencies

The median score of the Group A males was 10.0 , while the Group T males had a median score of 10.5 . Table VI gives the quartile scores for both groups. A probability of 0.2897 was associated with the z value of -0.5544 generated by the Mann-Whitney U test. The differences between the two groups was concluded to be non-significant. Table VII presents these results.

The females in Group A had a median score of 10.0 on this subsection. The females in Group T had a median score of 11.0 . Table VIII contains the quartile scores for both groups. A probability of 0.2567 was found for the difference between the scores of the two groups. This difference was then assumed to have occurred by chance. The probability was determined from the z value of -0.6540 generated from the Mann-Whitney U test. Table IX shows these results.

(6) Nervous Symptoms

In the comparison of Group A males and Group T males, a z value of -0.7648 was generated from the Mann-Whitney U test. Such a z value relates to a probability of 0.2222 which lead to acceptance of the null hypothesis. The results are presented in Table VII. Both groups had a median score of 11.0 , as shown in Table VI.

For the females, both Group A and Group T had median scores of 11.0 . The quartiles for both groups are given in Table VIII. A z value of -0.1748 , from the Mann-Whitney U test, yielded a probability of 0.4306 . With this probability, it was assumed the difference between groups occurred by chance. Table IX gives the statistical results.

(7) Total--Personal Adjustment

The median score for the Group A males was 69.0 . A median score of 67.0 was computed for Group T. Table VI gives the quartile scores for both groups. A z value of -0.3908 yielded a probability of 0.3480 , as shown in Table VII. This probability lead to the conclusion that the differences between groups was a result of random variation.

Group A females had a median score of 70.0 , while the Group T females had a median score of 69.0 . Quartile scores are given in Table VIII, and the statistical results of the Mann-Whitney U test are given in Table IX. The z value was -0.2340 and the probability was 0.4075 , which lead to acceptance of the null hypothesis.

Englander Scale

Three questions on the Englander scale were used as additional measures of self-concept. The first question was designed to measure

self-concept of intelligence. The second question was concerned with self-concept as a reader, while the third question dealt with self-concept as a student. Results on each question are presented separately.

(8) Self-concept of Intelligence

Modes for both the Group A males and the Group T males were at the choice which had been ranked third by Englander. Table X presents the frequency and percent of response for the two groups of males on each of the five choices for the three Englander subscales. The z value of -0.2943 was computed from the Mann-Whitney U test. The probability of such a value is 0.3843 . With this level of probability, the difference between groups was concluded to have occurred by chance. The Mann-Whitney U results on each of the three subscales appear in Table XI.

For the females, both groups had a mode at the third-ranked choice. Table XII gives the frequencies and percents for the five choices on each of the three Englander subscales. The results of the Mann-Whitney U test, shown in Table XIII, yielded a z value of -0.1324 and a probability of 0.4474 . The null hypothesis was accepted in this case.

(9) Self-concept as a Reader

Group A males had a mode at the lowest-ranked choice, as shown in Table X. The Group T distribution was bimodal, with equal frequencies at the third- and fourth-ranked choices. The probability of such a difference between the groups was found to be 0.0045 , with a z value of

TABLE X

FREQUENCY AND PERCENT OF RESPONSE OF GROUP A MALES AND GROUP T MALES ON THE FIVE CHOICES OF EACH OF THE SELF-CONCEPT QUESTIONS OF THE ENGLANDER SCALE

Area of Self-Concept	Rank of Choice	Group A Males		Group T Males	
		Frequency	Percent	Frequency	Percent
Intelligence	1	1	0.9	0	0.0
	2	23	21.1	11	16.2
	3	64	58.7	46	67.6
	4	16	14.7	9	13.2
	5	5	4.6	2	2.9
Reading	1	6	5.5	3	4.4
	2	3	2.8	1	1.5
	3	27	24.8	28	41.2
	4	36	33.0	28	41.2
	5	37	33.9	8	11.8
Studying	1	5	4.6	2	2.9
	2	12	11.0	7	10.3
	3	18	16.5	14	20.6
	4	58	53.2	33	48.5
	5	16	14.7	12	17.6

TABLE XI

THE MANN-WHITNEY U TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN SCORES OF GROUP A MALES AND GROUP T MALES ON THE SELF-CONCEPT QUESTIONS OF THE ENGLANDER SCALE

Area of Self-Concept	<u>U</u>	<u>U-Prime</u>	<u>z</u>	Probability
Intelligence	3621.5	3790.5	-0.2943	0.3843
Reading	2882.5	4529.5	-2.6090	0.0045*
Studying	3698.5	3713.5	-0.0245	0.4902

*Significant

TABLE XII

FREQUENCY AND PERCENT OF RESPONSE OF GROUP A FEMALES AND GROUP T FEMALES ON THE FIVE CHOICES OF EACH OF THE SELF-CONCEPT QUESTIONS OF THE ENGLANDER SCALE

Area of Self-Concept	Rank of Choice	Group A Females		Group T Females	
		Frequency	Percent	Frequency	Percent
Intelligence	1	0	0.0	0	0.0
	2	9	11.5	4	9.5
	3	47	60.3	26	61.9
	4	17	21.8	10	23.8
	5	5	6.4	2	4.8
Reading	1	6	7.7	3	7.1
	2	2	2.6	1	2.4
	3	24	30.8	14	33.3
	4	30	38.5	19	45.2
	5	16	20.5	5	11.9
Studying	1	4	5.1	0	0.0
	2	7	9.0	6	14.3
	3	13	16.7	4	9.5
	4	40	51.3	19	45.2
	5	14	17.9	13	31.0

TABLE XIII

THE MANN-WHITNEY U TEST OF SIGNIFICANCE OF DIFFERENCES BETWEEN SCORES OF GROUP A FEMALES AND GROUP T FEMALES ON THE SELF-CONCEPT QUESTIONS OF THE ENGLANDER SCALE

Area of Self-Concept	<u>U</u>	<u>U-Prime</u>	<u>z</u>	Probability
Intelligence	1617.0	1659.0	-0.1324	0.4474
Reading	1539.0	1737.0	-0.5760	0.2823
Studying	1402.0	1874.0	-1.3956	0.0814*

*Significant

-2.6090 from the Mann-Whitney U test. Due to the probability level, it was concluded there were differences over and above random variation. These results appear in Table XI.

The mode for both groups of females was at the fourth-ranked choice, as shown in Table XII. The Mann-Whitney U test generated a z value of -0.5760, and a probability of 0.2823 was related to the z value. The difference between groups was assumed to be non-significant. Table XIII gives the results of the Mann-Whitney U test.

(10) Self-concept as a Student

The fourth-ranked choice was the mode for both groups of males. Table X gives the frequency and percent of responses to each of the five choices. Table XI presents the results of the Mann-Whitney U test. A z value of -0.0245 related to a probability of 0.4902. At this probability level, the difference between groups was concluded to have occurred by chance.

As shown in Table XII, the mode for both groups of females was at the fourth-ranked choice, but the percentages at the other four choices varied considerably. The z value was -1.3956, and the probability was 0.0814. It was concluded that differences over and above random variation were present. These results are presented in Table XII.

Summary of Hypothesis I

Only two comparisons were found to support Hypothesis I. The Self-concept as a Reader variable for males had a probability of difference at the 0.0045 level of confidence. For the females, a probability of 0.0814 was found for Self-concept as a Student.

Hypothesis II: Statistical Analysis of Personal and Educational Variables

Four major areas of personal and educational variables were observed in this research. The first variable was the relative number of each sex which dropped out of the reading course. The second variable was academic potential, as measured by the composite score of the ACT tests. First semester college grade point average was the third variable. The Nelson-Denny Reading Test was used to measure the fourth major variable, reading ability. Four aspects of reading ability were considered. They were vocabulary, comprehension, total score and reading rate.

Results from each of the four major areas are considered in order. Separate analyses are made for males and females in all but the first area.

Sex

Thirty-five percent of the females and 38.4 percent of the males chosen for the study terminated their attendance in the reading improvement course. A χ^2 analysis of the difference was computed to be 0.227. With one degree of freedom, the probability of such a result was found to be 0.70. The difference was then assumed to be due to random variation. Table XIV presents the χ^2 analysis.

Academic Potential

The mean ACT composite score for the Group A males was 20.09, while the Group T mean for the males was 20.25. The t value of the difference between the ACT scores for the two groups was 0.2540, with

TABLE XIV

THE χ^2 TEST OF SIGNIFICANCE OF DIFFERENCES IN RELATIVE
NUMBER OF MALES AND FEMALES BETWEEN
GROUP A AND GROUP T

Sex	Total N	Group A		Group T		χ^2	Probab.
		Number	Percent	Number	Percent		
Male	177	109	61.6	68	38.4	0.227	0.70
Female	120	78	65.0	42	35.0		
Total	297	187	63.0	110	37.0		

a probability of 0.40. With this level of probability, the difference between groups was concluded to have occurred by chance. The t test for the males is presented in Table XV.

TABLE XV

THE t TEST OF SIGNIFICANCE OF DIFFERENCES IN ACT SCORES
BETWEEN GROUP A MALES AND GROUP T MALES

Group	N	ΣX	ΣX^2	\bar{X}	S.D.	t	Probability
A	109	2190	45,952	20.09	4.23	0.2540	0.40
T	68	1377	28,841	20.25	3.75		

Group A females had a mean ACT score of 18.42. A mean of 16.88 was calculated for the females in Group T. The probability of such a difference was 0.025, with a t value of 1.989. The difference between the two groups was inferred to be significant. Table XVI gives the t test results for the females.

TABLE XVI

THE t TEST OF SIGNIFICANCE OF DIFFERENCES IN ACT SCORES
BETWEEN GROUP A FEMALES AND GROUP T FEMALES

Group	N	$\sum X$	$\sum X^2$	\bar{X}	S.D.	t	Probability
A	78	1437	27,837	18.42	4.18	1.989	0.025*
T	42	709	12,537	16.88	3.68		

*Significant

First Semester Grade Point Average

For the Group A males, a mean GPA for their first semester college classes was 2.30. A mean GPA of 1.92 was accomplished by the Group T males. A t value of 2.9276 was related to a probability of 0.005 for the difference between the means. Such a level of probability indicated a difference over and above random variation. The statistical results for the males appear in Table XVII.

A t value of 2.5271 and a probability of 0.01 were computed for the difference between the means of the GPA's for the Group A females and the Group T females. The null hypothesis was rejected at this

TABLE XVII

THE t TEST OF SIGNIFICANCE OF DIFFERENCES IN FIRST SEMESTER
COLLEGE GPA BETWEEN GROUP A MALES AND GROUP T MALES

Group	N	$\sum X$	$\sum x^2$	\bar{X}	S.D.	t	Probability
A	109	251.00	650.4442	2.30	0.82	2.9276	0.005*
T	68	130.22	300.4530	1.92	0.87		

*Significant

probability level. A mean first semester GPA of 2.42 was recorded by the females of Group A. The Group T females had a mean GPA of 2.07. Table XVIII presents the results of the t test.

TABLE XVIII

THE t TEST OF SIGNIFICANCE OF DIFFERENCES IN FIRST SEMESTER
COLLEGE GPA BETWEEN GROUP A FEMALES AND GROUP T FEMALES

Group	N	$\sum X$	$\sum x^2$	\bar{X}	S.D.	t	Probability
A	78	188.59	495.8163	2.42	0.71	2.5271	0.01*
T	42	87.07	202.4529	2.07	0.72		

*Significant

Vocabulary

On the vocabulary section of the N-D, the Group A males had a median score of 29.0. The median score for the Group T males was 30.0. Quartile scores on the N-D subscales for both groups of males are given in Table XIX. The Mann-Whitney U test generated a z value of -0.6159, which is associated with a probability of 0.2690. The difference between groups was assumed to be non-significant. The Mann-Whitney U results for the N-D subscales are given in Table XX.

TABLE XIX
QUARTILE SCORES FOR GROUP A MALES AND GROUP T
MALES ON THE N-D SUBSCALES

N-D Subscales	Group A Males			Group T Males		
	Q ₁	M	Q ₃	Q ₁	M	Q ₃
Vocabulary	22.0	29.0	34.0	24.5	30.0	33.0
Comprehension	30.0	36.0	44.0	32.0	38.5	45.0
Total	53.0	66.0	75.0	59.0	67.0	77.5
Reading Rate	195	226	262	195	216	250

The Group A females had a median score of 30.0 and a median score of 28.5 was noted for the Group T females. Table XXI gives the quartile scores on the N-D subscales for both groups. A z value of -1.2060 was generated from the Mann-Whitney U test. This indicated a

TABLE XX

THE MANN-WHITNEY U TEST OF SIGNIFICANCE OF DIFFERENCES
IN INITIAL NELSON-DENNY SUBSCALE SCORES BETWEEN
GROUP A MALES AND GROUP T MALES

Nelson-Denny Subscales	<u>U</u>	<u>U-Prime</u>	<u>z</u>	Probability
Vocabulary	3502.0	3910.0	-0.6159	0.2690
Comprehension	3201.5	4210.5	-1.5247	0.0637*
Total	3274.5	4137.5	-1.3018	0.0965
Reading Rate	3438.0	3974.0	-0.8106	0.2088

*Significant

TABLE XXI

QUARTILE SCORES FOR GROUP A FEMALES AND
GROUP T FEMALES ON THE N-D SUBSCALES

N-D Subscales	Group A Females			Group T Females		
	<u>Q₁</u>	<u>M</u>	<u>Q₃</u>	<u>Q₁</u>	<u>M</u>	<u>Q₃</u>
Vocabulary	24.0	30.0	36.0	22.0	28.5	33.0
Comprehension	34.0	42.0	46.0	30.0	38.0	44.0
Total	57.5	70.5	82.0	56.0	66.5	80.0
Reading Rate	216	238	275	207	244	275

probability of 0.1139 of the difference occurring by chance. This variable was assumed to be non-significant at this level. Table XXII contains the statistical results on the subscales of the N-D.

TABLE XXII

THE MANN-WHITNEY U TEST OF SIGNIFICANCE OF DIFFERENCE
IN INITIAL NELSON-DENNY SUBSCALE SCORES BETWEEN
GROUP A FEMALES AND GROUP T FEMALES

Nelson-Denny Subscales	<u>U</u>	<u>U-Prime</u>	<u>z</u>	Probability
Vocabulary	1419.0	1857.0	-1.2060	0.1139
Comprehension	1433.0	1843.0	-1.1305	0.1291
Total	1408.0	1868.0	-1.2660	0.1028
Reading Rate	1613.5	1662.5	-0.1353	0.4462

Comprehension

The median score of the Group A males was 36.0, while the Group T males had a median score of 38.5. Table XIX gives the quartile scores for both groups. A probability of 0.0637 was associated with the z value of -1.5247 computed from the Mann-Whitney U test. It was concluded that differences over and above random variation were present. Table XX presents these results.

For the females, Group A had a median score of 42.0, and Group T had a median score of 38.0. The quartile scores for both groups are given in Table XXI. A z value of -1.1305, from the Mann-Whitney U

test, yielded a probability of 0.1291. With this probability, the null hypothesis was accepted. Table XXII gives the statistical results.

Total Score

In the comparison of Group A males and Group T males, a z value of -1.3018 was generated from the Mann-Whitney U test. Such a z value relates to a probability of 0.0965, which inferred the difference between groups was due to random variation. These results are presented in Table XX. Group A had a median score of 66.0, while Group T had a median score of 67.0, as shown in Table XIX.

The females in Group A had a median score of 70.5 on this measure of reading ability. The females in Group T had a median score of 66.5. Table XXI gives the quartile scores for both groups. A probability of 0.1028 was found for the differences between the scores of the two groups. The difference was then assumed to have occurred by chance. The probability was determined from the z value of -1.2660 generated from the Mann-Whitney U test. Table XXII shows these results.

Reading Rate

The median reading rate for the Group A males was 226 words per minute. A median reading rate of 216 words per minute was computed for males in Group T. Table XIX presents the quartile rates. A z value of -0.8106 yielded a probability of 0.2088, as shown in Table XX. The difference between groups was assumed to be non-significant.

Group A females had a median reading rate of 238 words per minute, while Group T females had a median reading rate of 244 words per minute. Quartile rates are shown in Table XXI, and the statistical results of

the Mann-Whitney U test are given in Table XXII. The z value was -0.1353 , and the probability was 0.4462 , which lead to acceptance of the null hypothesis.

Summary of Hypothesis II

Hypothesis II was supported by a number of variables. Significant differences in scores for the two groups of males were found for GPA and reading comprehension. For the two groups of females, differences greater than random variation were found for academic potential and GPA.

Summary

Hypothesis I stated there would be a statistically significant difference between the self-concepts of the attendants (Group A) and the terminators (Group T). Two instruments, the CTP and the Englander scale, were used as self-concept measures. Concerning the CTP, no subscale was found to sufficiently differentiate Group A from Group T. This was true for both males and females. On the Englander scale, the two groups of males were found to be different on the Self-concept as a Reader subscale. The probability of the difference was significant at the 0.0045 percent level. The females were different on the Self-concept as a Student subscale, with a probability of 0.0814 . None of the other comparisons on the Englander subscales were found to have greater than chance variance.

Hypothesis II stated there would be a statistically significant difference between selected personal and educational aspects of the attendants (Group A) and the terminators (Group T). No difference,

other than randomness, was indicated in the relative number of males and females in each group. In relation to the ACT composite scores, the two groups of males were not sufficiently different, but the difference between the Group A females and the Group T females was significant at the 0.025 percent level. Both the differences between the males and the females of the two groups were concluded to be over and above random variation in relation to first semester college GPA. The probability for the males was 0.005, and the probability for the females was 0.01.

On the reading test, the two groups of males differed in comprehension ($p = 0.0637$). All other comparisons on the N-D were concluded to have occurred by chance.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

General Review of the Study

Reading improvement has become an important function of institutions of higher education. In order to implement this function, many schools have introduced voluntary, non-credit reading courses. Although the history of these programs has generally been one of success in improving reading, many students who enroll in the classes terminate their attendance before the completion of the course. Attrition rates from 15 percent to 50 percent are generally reported.

It was the purpose of this research to study some of the variables which might relate to this attrition. Previous studies had found relationships with class subgroups, time of class, motivation, and personality variables, including self-concept. The independent variables of this research included various aspects of self-concept, as well as sex, academic potential, grade point average, and initial reading ability. Rogers' (1951) Self Theory and Roth's (1961) theory of attrition in voluntary, non-credit college reading improvement programs were used as theoretical bases.

Two hypotheses were presented. Hypothesis I stated there would be a statistically significant difference between the self-concepts of the attendants (Group A) and the terminators (Group T). Hypothesis II stated there would be a statistically significant difference between

selected personal and educational aspects of the attendants (Group A) and the terminators (Group T). The selected aspects included sex, academic potential, first semester college GPA, and initial reading ability. Self-concept was measured by the California Test of Personality, Personal Adjustment section, and by three subscales of the Englander scale. Academic potential was measured by ACT composite scores. The Nelson-Denny Reading Test was used as a measure of reading ability.

The ACT tests had been administered during the previous year. The N-D tests were given during the preceding summer. Other instruments were given at the beginning of the third week of the reading improvement course.

First semester freshmen who enrolled in the reading improvement program at Oklahoma State University during the Fall semester, 1968, were used as subjects. There were 177 males and 120 females in the final sample. Sixty-eight of the males and 42 of the females failed to complete the course.

Statistical analyses of the data from the CTP, Englander scale, and the N-D were made with the Mann-Whitney U test. The χ^2 test was used for the analysis of the sex variable, and the t test was used with the ACT scores and the GPA's. The analyses were run separately for males and females.

Conclusions

The CTP and the Englander scale were used as operational statements of Hypothesis I. On the subscales of the CTP, there were no differences found to be greater than random variation between the Group A males and

the Group T males. None of the differences between medians were over one point, except for the total score area, where there was a difference of two points. The probabilities of the differences ranged from 0.4418 on the Self-Reliance subscale to 0.2222 on the Nervous Symptoms subscale.

Similar results on the CTP were found between the two groups of females. Again, none of the differences between medians was over one point, including the total score area. The range of probabilities was from 0.4641 on the Feeling of Belonging subscale to 0.2527 on the Self-Reliance subscale.

The three self-concept subscales of the Englander scale indicated more positive results. Both the Group A males and the Group T males had a mode at the third-ranked choice of the Self-concept of Intelligence subscale. The probability of the difference between scores for the two groups was 0.3843. This difference was concluded to be non-significant. On the Self-concept as a Reader subscale, the males of Group A had a mode of the fifth-ranked choice. The Group T males had a bimodal distribution, with modes at the third- and fourth-ranked choices. A probability of 0.0045 was computed for the difference and the null hypothesis was rejected. The Self-concept as a Student subscale had a probability of difference of 0.4902, as both groups of males displayed a mode at the fourth-ranked choice. This difference was concluded to be due to random variance.

Modes at the third-ranked choice were recorded by both the Group A females and the Group T females on the Self-concept of Intelligence subscale. A probability of 0.4474 was associated with the difference in scores which lead to the assumption of a non-significant difference.

This result was similar to the one for the males. The Englander scale results for the females were somewhat different than those of the males on the latter two subscales. The two groups of females had a probability of difference of 0.2823 on the Self-concept as a Reader subscale. This difference was concluded to be non-significant. Both groups had modes at the fourth-ranked choice. The females of Group A and the females of Group T also had the same mode on the Self-concept as a Student subscale. The modes were at the fourth-ranked choice. Despite the same modes, the probability of the difference in the scores of the two groups was 0.0814 due to the distribution of scores at the other choices. Such a difference was inferred to be over and above random variation.

Based upon the results of the self-concept instruments, the following conclusions concerning Hypothesis I were made:

1. There were no statistically significant differences between the male attendants (Group A) and the male terminators (Group T) with respect to the self-concept areas of self-reliance, sense of personal worth, sense of personal freedom, feeling of belonging, withdrawing tendencies, nervous symptoms, total personal adjustment, self-concept of intelligence, and self-concept as a student. None of these self-concept areas discriminated beyond a probability of 0.2222.
2. Differences greater than random variation were found between the male attendants (Group A) and the male terminators (Group T) with respect to the area of self-concept as a reader. The probability of the difference was 0.0045, with the Group A males having the lower scores.

3. There were no statistically significant differences between the female attendants (Group A) and the female terminators (Group T) with respect to the self-concept areas of self-reliance, sense of personal worth, sense of personal freedom, feeling of belonging, withdrawing tendencies, nervous symptoms, total personal adjustment, self-concept of intelligence, and self-concept as a reader. The lowest probability of variations other than chance on these variables was 0.2527.
4. Self-concept as a student for the females was concluded to be statistically significant with a probability of 0.0814. The Group A females had the higher scores on this variable.

Hypothesis III dealt with selected personal and educational aspects of the subjects. Those aspects included sex, academic potential, first semester GPA, and initial reading ability.

Analysis of the relative number of males and females in Group A and Group T indicated no statistically significant difference between the two groups. Thirty-five percent of the females and 38.4 percent of the males terminated their attendance in the course. The probability of the difference was 0.70.

In relation to academic potential, as measured by ACT composite scores, a probability of 0.40 was calculated for the differences between the two groups of males. The Group A males had a mean of 20.09 and a standard deviation of 4.23, while a mean of 20.25 and a standard deviation of 3.75 was found for the males of Group T. The mean ACT for the Group A females was 18.42, with a 4.18 standard deviation. For the Group T females, the mean was 16.88 and the standard deviation was 3.69. This difference led to a probability of 0.025.

The null hypothesis was accepted for the comparison between the two groups of males, while it was rejected for the two groups of females.

The mean first semester college GPA for the males of Group A was 2.30. A mean GPA of 1.92 was accomplished by the Group T males. The standard deviations were .82 and .87, respectively. The difference was significant at the 0.005 level of probability. The GPA's for the females also proved significant. Group A had a 2.42 mean GPA with a .71 standard deviation, while Group T had a mean of 2.07 and a standard deviation of .72. The probability of such a difference was 0.01.

Initial reading ability was measured by the Nelson-Denny Reading Test. This test gives scores in four areas; vocabulary, comprehension, total score, and reading rate. Table XXIII lists the probabilities found for both males and females in each of the four areas or reading ability.

TABLE XXIII

PROBABILITY OF CHANCE DIFFERENCES FOR BOTH
THE MALES AND THE FEMALES ON FOUR AREAS
OF INITIAL READING ABILITY

Area of Reading Ability	Males	Females
Vocabulary	0.2690	0.1139
Comprehension	0.0637	0.1291
Total	0.0965	0.1028
Reading Rate	0.2088	0.4462

The only comparison of initial reading ability which was concluded to be due to variation other than chance was the difference in reading comprehension for the two groups of males. The total score difference for the males was not considered significant because most of the variance was due to the differences in comprehension scores. It should be pointed out that the males of Group T, as a whole, had the higher scores on all reading variables except reading rate. For the females, the opposite results were true. The Group A females, as a group, had the higher reading scores in every area except reading rate. These results would indicate a possible interaction effect between group and sex with respect to initial reading ability.

A number of conclusions were reached related to Hypothesis II.

1. There was no statistically significant difference between the relative number of males and females who terminated their attendance in the reading program. The probability was 0.70.
2. The differences between the male attendants (Group A) and the male terminators (Group T) with respect to academic potential and initial reading ability in the areas of vocabulary, total score, and reading rate were concluded to be due to random variance. The probability for academic potential was 0.40, while for vocabulary, total score and reading rate the respective probabilities were 0.2690, 0.0965, and 0.2088.
3. The null hypothesis was rejected for the differences between the male attendants (Group A) and the male terminators (Group T) with respect to first semester college grade point average at the 0.005 level of probability, and for reading

comprehension at the 0.0637 level. The terminators had the higher scores on both variables.

4. There was no statistically significant difference between the female attendants (Group A) and the female terminators (Group T) with respect to the initial reading ability.
5. There were differences over and above random variation between the female attendants (Group A) and the female terminators (Group T) with respect to academic potential ($p = 0.025$) and first semester college GPA ($p = 0.01$). The Group A females were higher on both variables.

One of the most significant findings of this study was the differences between the responses of males and females. The relationship of sex to attrition was one of interaction more than a direct relationship because the direct relationship of the relative number of males and females who terminated their attendance was concluded to be non-significant. Although the interactions were not computed statistically, it would appear the variable of sex would possibly interact significantly with a number of other variables. Among these variables might be self-concept as a reader, self-concept as a student, academic potential, and initial reading ability.

None of the studies of attrition which were reviewed in Chapter II used sex as a variable for observation. Because sex was not considered by these studies, the results they received may have been somewhat spurious.

The only variable found to be greater than random variance for both males and females was first semester college GPA. The subjects in

Group T earned a lower GPA, as a group, than the subjects in Group A. Roth (1959) found similar results in his study, but he did not report on the statistical significance of the difference. Schneyer (1963) reported his attrition group had a lower GPA than those who stayed in the course, but the difference was inferred to be due to random variation. No significant difference in GPA was reported by Wright and Lazaraton (1963).

With respect to academic potential, this study found no statistically significant difference between the two groups of males, but did note a significance between the two groups of females. Wright and Lazaraton (1963) indicated no statistically significant differences in academic potential between those who dropped out of the course and those who finished the course. The instruments used were the verbal and mathematics subscales of the Scholastic Aptitude Test. Schneyer (1963), using the same instruments, reported the attrition group scores to be between the scores of improvers and non-improvers on the verbal subscale and the total score. The attrition group was the highest on the mathematics subscale.

Initial reading ability indicated only one difference greater than chance, which was the difference in comprehension for the males. No significant differences in reading ability were found by Wright and Lazaraton (1963). The attrition group was reported by Schneyer (1963) to be lower in reading rate and comprehension than the students who remained in the program, but neither comparison was significant. Roth (1959) found no differences above randomness in initial vocabulary and reading effectiveness between an attrition group, an improver group, and a non-improver group.

Only two of the self-concept variables had differences large enough to reject the null hypothesis. These were the self-concept as a reader for the males and the self-concept as a student for the females. Roth's (1959) study was the only research reviewed which used self-concept as a variable in a study of attrition in reading improvement classes. Roth found the attrition group to be defensive in the area of Self as a Reader. The result might have been due to the fact that 45 of the 54 subjects in his experiment were males.

The results of the research reported herein would tend to support the theories of Roth (1961) and Rogers (1951) if only the data for the males were considered. Both theories would predict a tendency toward attrition or withdrawal from the situation if the situation was perceived as contrary to the self-concept. In other words, the results would suggest the attrition group males perceived themselves as good readers, but the situation they were in would lead to a perception of themselves as poor readers. This would not be useful in predicting attrition for the females, since there was no statistically significant difference in the self-concept as a reader variable between the two groups of females. It should be pointed out that this particular conclusion was not predicted at the beginning of the study. It was felt earlier that the students with lower self-concepts would tend to drop out of the course.

It would seem, then, the males terminated their attendance in the course because (1) their self-concept as a reader was not consistent with their perception of the reading situation, and (2) their academic performance was such that it was necessary to drop the non-credit reading course so as to allow for greater concentration on the credit

courses. For the females, it would seem that the latter description for the males would be appropriate. It could be possible the difference in academic performance (GPA) between the two groups of females was precipitated by their differences in academic potential.

Recommendations

In any research endeavor, a number of aspects are identified which could relate to the study but are not specifically considered in the design. These aspects then become recommendations for guiding future research. The following are some aspects related to attrition in college reading programs which might deserve analysis.

1. Studies of attrition would be useful which would include the terminators who enroll in the reading improvement program but fail to attend any of the classes.
2. Studies of attrition which included the terminators who drop out in the first two weeks of the course could possibly add interesting and useful information.
3. Follow-up testing of the terminators could be rewarding. Included might be analyses of changes in self-concept and reading ability, as well as reasons for dropping the course.
4. Other self-concept instruments should be used for studying attrition.
5. Further studies of attrition might concentrate on other independent variables, such as the time of the class and differences between instructors.
6. Studies of attrition, similar to the one described herein, should analyze the interactions between variables.

7. Different populations and other college reading improvement programs should be used in order to replicate the results of the study described herein.

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APPENDIX A
THEORIES RELATED TO ATTRITION

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THEORIES RELATED TO ATTRITION

Rogers' Self Theory

Rogers presented the following propositions in his book, Client-centered Therapy (1951).

1. "Every individual exists in a continually changing world of experience of which he is the center" (p. 483). This is commonly known as the person's phenomenal field, and consists of all the conscious and unconscious experiences of the individual. Only a small portion of these experiences are conscious; and the experiences of the individual are in essence known only to the individual perceiver.
2. "The organism reacts to the field as it is experienced and perceived. This perceptual field is, for the individual, 'reality'" (p. 484). The person is always checking this perception of reality with further perceptions of the world around him. His perceptions serve as hypotheses which are in need of further testing. The world of reality, then, is a series of hypotheses which have been tested to a greater or lesser extent.
3. "The organism reacts as an organized whole to this phenomenal field" (p. 486). Descriptions in terms of atomistic reactions cannot fully explain the total, complex behavior of individuals. A change in any part of the organism leads to changes in other parts of the organism.
4. "The organism has one basic tendency and striving--to actualize, maintain, and enhance the experiencing organism" (p. 487). Rogers is postulating one basic motive for man, that of self-actualization. The organism has at all times the strivings toward fulfilling its positive capacities as they are seen through the organism's perception. The organism moves toward independence and differentiation.
5. "Behavior is basically the goal-directed attempt of the organism to satisfy its needs as experienced, in the field as perceived" (p. 491). These needs are not necessarily always consciously perceived. It is also important to realize past experiences are not "causes" of behavior. The organism must always operate within its present needs and perceptions. Past experiences do modify perceptions, though.
6. "Emotion accompanies and in general facilitates such goal-directed behavior, the kind of emotion being related to the seeking versus the consummatory aspects of the behavior, and

the intensity of the emotion being related to the perceived significance of the behavior for the maintenance and enhancement of the organism" (p. 493). Those emotions which aid seeking behavior (unpleasant or exciting emotions) will be exhibited when the organism is performing seeking behaviors. Those emotions which aid consummatory behaviors (calm or satisfying emotions) will be exhibited when the organism is performing consummatory behaviors. The intensity of emotion will vary with the organism's perception of the meaning of the situation.

7. "The best vantage point for understanding behavior is from the internal frame of reference of the individual himself" (p. 494). It must be remembered that behavior which, from an external frame of reference, may seem maladjusted or random, is perceived by the behaving individual, at the time of the behavior, as being purposeful and appropriate. The best way to understand a person's behavior, then, is to view it from an internal frame of reference. This is most profitably obtained from self reports by the individual which occur in non-threatening situations. Of course it is realized the person's reports are always inaccurate to a degree. The more conscious he is of his experiences, the more accurate will be his communications.
8. "A portion of the total perceptual field gradually becomes differentiated as the self" (p. 497). Self is one's awareness of one's being and of one's functioning. The self is differentiation from an object or experience in that the self is that part of the object or experience over which the organism has control.
9. "As a result of interaction with the environment, and particularly as a result of evaluational interaction with others, the structure of self is formed--an organized, fluid, but consistent conceptual pattern of perceptions of characteristics and relationships of the 'I' or the 'me,' together with values attached to these concepts" (p. 498). As the organism develops concepts of self and self in relation to environment, the experiences related to this awareness become associated with positive or negative character. Enhancing experiences are seen as positive, threatening experiences as negative.
10. "The values attached to experiences, and the values which are a part of the self structure, in some instances are values experienced directly by the organism, and in some instances are values introjected or taken over from others but perceived in distorted fashion, as if they had been experienced directly" (p. 498). Initial experiences of self are directly experienced. As the child develops, he is evaluated by others. Often the direct experience and the evaluation by others are not consonant. At this point the person may distort his perceptions to make them fit his self picture. He may distort his experiences or he may distort the evaluations received

from others. Distorted evaluations from others may be accepted as though they had been perceived directly by the individual.

11. "As experiences occur in the life of the individual, they are either (a) symbolized, perceived, and organized into some relationship to the self, (b) ignored because there is no perceived relationship to the self-structure, (c) denied symbolization or given a distorted symbolization because the experience is inconsistent with the structure of the self" (p. 503). When the organism recognizes a need and when an experience is perceived as being able to meet that need or to reinforce the self-concept without being a threat to the self structure, the experience is then allowed into conscious perception. If the experience is not related to the self at the moment of experience and meets no need of the organism, the experience is ignored. Most of the experiences of the organism are of this type. When an experience is a threat to or not consistent with the self-concept, it is either denied conscious perception or the perception is distorted so as to fit with the self-concept. This has no relation to the social content of the experience. A complimentary experience may be denied conscious perception, and a derogatory experience may be perceived because of its correspondence to the self-concept.
12. "Most of the ways of behaving which are adopted by the organism are those which are consistent with the concept of self" (p. 507). Most behavior will be such that it is directly consistent with the self. Denial may be used, though, if the self is perceived in one manner, and the needs of the organism are contradictory. In such instances behavior is exhibited which resolves the organic need, but the behavior takes a form consistent with the self-concept.
13. "Behavior may, in some instances, be brought about by organic experiences and needs which have not been symbolized. Such behavior may be inconsistent with the structure of the self, but in such instances the behavior is not 'owned' by the individual" (p. 509). Organic needs may become so strong that they will be expressed whether they conform to the self picture or not. In such cases the person will usually deny the behavior or express feelings such as he was "not himself" or "didn't know what he was doing."
14. "Psychological maladjustment exists when the organism denies to awareness significant sensory and visceral experiences, which consequently are not symbolized and organized into the gestalt of the self-structure. When this situation exists, there is a basic or potential psychological tension" (p. 510). The individual becomes increasingly tense as the experiences of the organism are at variance with the concept of self. The person has growing difficulty meeting the needs of the organism when the experiences are denied to consciousness.

15. "Psychological adjustment exists when the concept of the self is such that all the sensory and visceral experiences of the organism are, or may be, assimilated on a symbolic level into a consistent relationship with the concept of self" (p. 513). This does not mean the individual is in control of all his experiences, or that he is aware of them all. Some experiences temporarily may not be perceived. The important point is that they are available for perception.
16. "Any experience which is inconsistent with the organization or structure of self may be perceived as a threat, and the more of these perceptions there are, the more rigidly the self-structure is organized to maintain itself" (p. 515). As the self and the organism develop more inconsistencies, more defenses must be used to maintain the self. This leads to even greater maladjustment.
17. "Under certain conditions, involving primarily complete absence of any threat to the self-structure, experiences which are inconsistent with it may be perceived, and examined, and the structure of self revised to assimilate and include such experiences" (p. 517). This is the basic premise behind Rogers' client-centered therapy. The person is allowed to explore the relationships between the organism and the self without perceiving the exploration as being a threat. It is possible, in some situations, for the individual to achieve this awareness on his own, but in most cases it requires a non-threatening relationship with another person.
18. "When the individual perceives and accepts into one consistent and integrated system all his sensory and visceral experiences, then he is necessarily more understanding of others and is more accepting of others as separate individuals" (p. 520). When the person must defend his self against threat, he will often interpret many social experiences as threats which were not intended as such. When the self and the organism are consistent, it is not necessary for the individual to defend against these experiences.
19. "As the individual perceives and accepts into his self-structure more of his organic experiences, he finds that he is replacing his present value system--based so largely upon introjections which have been distortedly symbolized--with a continuing organismic valuing process" (p. 522). The individual learns he can depend upon his own senses for making evaluations of his experiences. As this occurs, the self becomes a dynamic, evaluating, and changeable system.

Roth's Theory of Voluntary Remedial Reading Programs

Fifteen propositions are given by Roth as explanations for his theory.

1. "Students Perceive The Relationship Between Themselves And A Remedial Program Differently, Depending Upon Their Motivation For Participation." Roth states here that just because students are grouped according to reading ability does not mean they will be homogeneous in nature.
2. "The Motivation Of Students Seeking Remedial Reading Is Either For True Remediation Or To Maintain Self Concepts." Some students will attend reading courses because of a recognized need and a genuine desire to improve their reading abilities. Other students attend reading courses in order to satisfy personal self needs.
3. "Those Who Seek Remedial Reading To Maintain Self-Concepts Are Either Trying To 'Prove To Themselves' That They Can Gain From The Experiences Or That They Cannot Gain From The Experiences." The student who improves in reading for the sake of self-concept does so at a sacrifice to some other area of life (e.g. grade point averages). He is trying to show himself that hard work and improvement in reading really has no effect on himself in other life areas. The student who does not improve in reading is trying to show himself he cannot improve his reading. Roth (1959) found these students did not drop in GPA.
4. "Students Whose Motivation Is Reading Improvement Are Aware Of Their Motives; Students Whose Motivation Is To Maintain Self Concepts Are Not Aware Of Their Motives." This statement seems to indicate that both groups of students would state they hoped to improve their reading skills.
5. "A Remedial Program Is A Stimulus, The Result Of The Program Is A Response, And The Individual's Motivation Is A Mediating Intervening Variable." Without the mediating aspect, it would be expected that positive aspects in the reading program would lead to positive results. Positive motivation, as a mediating variable, would lead to better results. Negative motivation would lead to poorer results.
6. "A Structured Program (Stimulus) Allows The Motivation (Mediating Variable) To Determine The Result (Response)." The mediating variable controls the strength and direction of the results. The stimulus only starts the action.
7. "An Unstructured Program Is A Stimulus Situation Or A Background In Which The Mediator Is The Direct Stimulus." An unstructured program allows the student to develop a structure

that is internal in nature, rather than one which is imposed upon him externally. This leads the student to work toward self-diagnosis, and thereby lessens or eliminates the mediator role. Roth defines a structured program as one in which a prescribed syllabus is used. The unstructured program is flexible in meeting individual student's needs.

8. "A Structured Program Does Not Affect The Mediator." In the structured program no aspect of the student, other than his reading ability, can be effected in the student.
9. "An Unstructured Program Tends To Bring To Awareness The Mediating Factors." The unstructured program requires the student to bring his own needs, desires, and motives into play.
10. "Group Processes Tend To Facilitate The Effects Of The Unstructured Program." The cohesive group will set the strength and direction of the program. The student whose motivations agree with the group members will be enhanced. The student who disagrees with the motivations of the group members will be urged by the group to change his attitudes or will be informally excluded.
11. "When Student's Motivation Is Improvement In Reading, He Will Gain As Much From A Structured As From An Unstructured Program." The goals of both types of programs become the same.
12. "When Student's Motivation Is Failure Or Success Rather Than Improvement Of Reading Ability, He Will Tend To Achieve His Goal In A Structured Program. In An Unstructured Program He Will Experience Anxiety and Group Pressure." Anxiety will be increasingly present as group pressure is applied and as the student realizes he must maintain his self-concept or improve his reading, thereby forcing a change in self-concept.
13. "Students Whose Sole Motivation Is Failure Or Success Will Drop Out Of The Program If Not Aided In Relieving The Anxiety." The tensions created by prospects of self-concept change leave the students with two choices; putting up with the anxiety, or, more likely, dropping the course.
14. "If The Students Are Aided During Their Anxious Periods, They Will Reassess Their Motives And Its Causes." Once the students are given an opportunity to explore their anxieties, they will be more able to understand the causes of their situation.
15. "A Restructuring Of These Self Perceptions Will Result."

APPENDIX B
INSTRUCTIONS GIVEN FOR ADMINISTRATION
OF TESTING INSTRUMENTS

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INSTRUCTIONS GIVEN FOR ADMINISTRATION
OF TESTING INSTRUMENTS

1. Pass out answer sheets for CTP and have the students fill in all needed information.
 - a. Class - Freshman, Soph., etc.
 - b. College of Enrollment - Engineering, A&S, etc.
2. Directions for using answer sheet:

"Circle your answer (YES or NO) for each question. If you make a mistake or wish to change an answer, do it this way: First, make an X across the old answer. After you have marked the new answer, erase the old answer and the X completely. Any questions?"
3. Pass out test booklets for CTP.
4. Instructions to students:
 - a. "Do not put your names or any other marks on this test booklet. Now, look at the bottom of the page where it says: Instructions to Students. Read these instructions silently while I read them aloud. The instructions are: This booklet contains some questions which can be answered YES or NO. Your answers will show what you usually think, how you usually feel, or what you usually do about things. Work as fast as you can without making mistakes. Do not turn this page until told to do so.

"Open your test booklet to page 2 and fold it back so only page 2 shows. Now, look at the Instructions to Students."
 - b. Read the Instructions and the Samples. Do not read the Directions for Marking Answers. If there are any questions concerning marking, reread earlier directions (part 2).
 - c. "After I tell you to begin, go right on from one page to another until you have answered the first 90 questions. Work as fast as you can without making mistakes. Be sure to make your answers on the answer sheet, not on the test booklet. Are there any questions? Now, look at item 1 on page 3. Begin the test."
5. Allow approximately 30 minutes for the students to finish the test.
6. Pass out the other questionnaires. Have the students fill in all needed information.
7. (Englander Scale) "Now turn to the other questionnaire. Indicate which of the respective choices expresses your feelings. Circle the number in front of the choice which best expresses your feelings. Make only one choice for each of the open-end statements."

APPENDIX C
STATISTICAL EQUATIONS

APPENDIX C

STATISTICAL EQUATIONS

The following formulas were used for the Mann-Whitney U analysis.

$$U = n_1 n_2 + \frac{n_1 (n_1 + 1)}{2} - R_1 \quad (\text{Siegel})$$

$$z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\frac{(n_1)(n_2)(n_1 + n_2 + 1)}{12}}} \quad (\text{Siegel})$$

The following formula was used for the χ^2 analysis.

$$\chi^2 = \frac{N (|AD - BC| - \frac{N}{2})^2}{(A+B)(C+D)(A+C)(B+D)} \quad df=1 \quad (\text{Siegel})$$

The following formulas were used for the t test analysis.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1 - \bar{X}_2}} \quad (\text{Edwards})$$

$$s_{\bar{X}_1 - \bar{X}_2} = \sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{n_1 + n_2 - 2} \right) \left(\frac{1}{n_1} + \frac{1}{n_2} \right)} \quad (\text{Edwards})$$

$$\sum x^2 = \sum X^2 - \frac{(\sum X)^2}{N} \quad (\text{Edwards})$$

APPENDIX D
RAW SCORE DATA FOR SUBJECTS
IN GROUP A AND GROUP T

APPENDIX D

RAW SCORE DATA FOR SUBJECTS IN GROUP A AND GROUP T

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
001	A	M	13	15	15	14	13	11	81	3	4	2	19	1.56	33	32	065	359
002	A	M	10	14	12	13	11	11	71	3	5	1	21	3.00	27	48	071	226
003	A	M	12	15	14	14	12	10	77	3	4	4	17	1.50	16	28	044	226
004	A	M	07	12	13	14	08	12	66	2	4	4	24	3.50	38	54	092	226
005	A	M	09	09	12	11	05	03	49	3	4	4	26	2.67	36	34	070	185
006	A	M	10	12	13	10	09	11	65	3	4	1	25	3.56	37	48	085	195
007	A	M	14	14	15	15	13	14	85	3	5	4	18	1.75	21	32	053	371
008	A	M	12	12	12	10	10	10	66	2	5	3	26	2.93	47	44	091	185
009	A	M	12	14	13	13	10	11	73	2	3	3	26	1.60	37	54	091	238
010	A	M	11	15	09	13	11	10	69	2	3	3	28	3.53	53	62	115	298
011	A	M	10	15	15	14	15	09	78	3	3	2	23	1.80	27	32	059	262
012	A	M	13	12	12	15	13	14	79	3	3	4	22	1.29	33	46	079	216
013	A	M	12	12	15	06	11	12	68	3	4	4	18	3.06	29	26	055	140
014	A	M	11	13	12	15	08	02	61	3	5	4	11	2.20	28	18	046	140
015	A	M	09	08	11	11	08	07	54	2	3	4	27	3.38	41	54	095	262
016	A	M	12	12	14	15	12	13	78	4	3	4	18	1.53	27	30	057	250
017	A	M	11	13	14	13	12	11	74	3	3	3	16	2.80	19	28	047	287
018	A	M	09	11	14	12	06	14	66	3	4	3	24	2.47	32	34	066	238
019	A	M	09	12	14	15	07	07	64	3	3	4	20	1.20	31	34	065	174
020	A	M	13	15	14	15	14	11	82	3	3	2	23	2.79	31	40	071	216
021	A	M	10	14	15	14	12	07	72	3	4	4	13	2.40	14	26	040	216
022	A	M	12	15	13	15	14	13	82	3	3	3	22	2.53	25	44	069	309

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
023	A	M	10	14	12	08	08	05	57	3	5	4	24	2.40	26	46	072	195
024	A	M	07	12	14	12	07	11	63	3	4	4	22	2.93	44	56	100	275
025	A	M	12	14	12	13	15	10	76	3	5	4	22	1.36	30	36	066	174
026	A	M	13	12	13	14	09	13	74	4	4	4	20	3.08	40	38	078	275
027	A	M	14	10	12	14	12	13	75	3	4	4	15	2.07	07	10	017	115
028	A	M	09	12	12	14	07	09	63	3	1	4	14	2.14	31	36	067	338
029	A	M	10	14	15	15	15	14	83	3	3	3	19	2.80	30	44	074	207
030	A	M	10	13	12	09	04	03	51	4	5	5	15	1.00	25	24	049	161
031	A	M	11	13	12	14	09	09	68	3	5	5	13	1.50	23	32	055	216
032	A	M	11	12	14	13	06	05	61	2	5	3	25	3.13	32	48	080	250
033	A	M	15	14	10	13	05	07	64	2	5	4	24	3.00	34	42	076	250
034	A	M	10	12	15	11	08	13	69	2	3	2	24	3.73	37	48	085	262
035	A	M	08	12	14	13	08	12	67	3	5	4	23	2.27	32	32	064	250
036	A	M	08	11	11	15	08	12	65	2	4	4	25	2.53	40	50	090	250
037	A	M	11	14	11	15	13	14	78	2	4	1	19	2.38	21	52	073	226
038	A	M	11	13	13	15	14	14	80	3	4	4	19	2.07	19	28	047	226
039	A	M	09	11	14	15	10	07	66	3	5	4	21	2.19	19	36	055	207
040	A	M	10	14	09	13	08	13	67	3	4	4	26	2.78	31	46	077	238
041	A	M	06	11	07	08	05	11	48	4	5	5	11	0.75	21	36	057	226
042	A	M	07	14	14	14	11	14	74	3	1	2	24	2.94	34	36	070	195
043	A	M	11	11	13	12	10	08	65	3	4	4	17	2.00	34	32	066	195
044	A	M	13	14	13	13	08	06	67	3	1	4	15	1.21	23	30	053	298
045	A	M	12	13	14	14	12	13	78	3	3	3	21	2.56	32	34	066	195
046	A	M	09	10	09	12	11	09	60	3	5	4	23	2.67	29	38	067	226
047	A	M	10	12	14	12	09	12	69	3	5	2	15	3.21	13	22	035	174

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
048	A	M	06	11	04	09	03	01	34	4	4	5	18	1.56	33	34	067	338
049	A	M	10	07	13	08	07	10	55	3	4	4	24	2.40	27	40	067	161
050	A	M	11	14	13	14	14	11	77	5	5	4	16	2.18	13	30	043	250
051	A	M	12	15	14	15	10	09	75	4	5	4	16	2.64	18	28	046	216
052	A	M	13	15	15	15	13	13	84	3	3	3	17	1.93	20	34	054	207
053	A	M	13	15	13	15	14	15	85	3	4	4	13	3.00	19	24	043	185
054	A	M	14	14	15	15	15	15	88	3	4	3	20	2.33	29	44	073	207
055	A	M	10	09	08	07	10	07	51	5	3	4	27	0.80	48	54	102	250
056	A	M	11	10	12	11	07	08	59	1	4	5	23	0.86	41	42	083	140
057	A	M	09	12	14	12	07	11	65	3	4	3	22	4.00	32	42	074	216
058	A	M	10	12	14	13	11	11	71	4	1	5	21	1.73	29	46	075	287
059	A	M	12	15	12	13	12	11	75	3	3	5	20	2.93	32	30	062	287
060	A	M	13	13	15	14	13	12	80	2	4	4	19	2.40	25	38	063	238
061	A	M	13	13	12	13	11	13	75	2	3	1	21	1.88	31	44	075	250
062	A	M	09	03	09	06	01	05	33	5	5	4	17	2.33	27	24	051	128
063	A	M	09	12	12	14	13	10	70	4	4	2	18	0.27	25	28	053	298
064	A	M	11	11	14	14	11	13	74	2	3	4	22	2.00	32	34	066	207
065	A	M	12	10	12	15	14	12	75	3	5	4	16	1.38	27	10	037	275
066	A	M	13	12	14	14	10	13	76	3	3	3	23	1.36	28	32	060	216
067	A	M	09	14	12	14	08	07	64	3	4	4	19	3.57	32	44	076	140
068	A	M	07	09	13	07	03	09	48	3	3	5	31	4.00	54	66	120	262
069	A	M	14	11	13	10	10	10	68	3	5	4	17	1.92	18	24	042	074
070	A	M	02	10	14	04	07	13	50	3	2	5	24	1.86	30	44	074	275
071	A	M	12	10	13	13	10	08	66	5	5	5	21	1.79	23	32	055	262
072	A	M	13	14	15	15	15	13	85	3	5	4	09	1.13	14	16	030	104

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	SS	T-PA	I	R	S			V	C	Tot	Rate
073	A	M	09	10	08	10	03	05	45	3	2	5	17	2.73	27	30	057	275
074	A	M	12	12	13	14	08	13	72	3	1	4	21	2.56	33	48	081	275
075	A	M	10	14	12	14	09	13	72	3	4	4	20	3.50	34	42	076	185
076	A	M	11	14	13	14	10	08	70	3	4	2	20	3.29	16	42	058	287
077	A	M	10	11	15	14	12	13	75	2	5	1	23	3.57	33	44	077	195
078	A	M	12	13	11	11	06	08	61	4	5	5	20	2.00	25	38	063	250
079	A	M	08	11	13	09	09	06	56	4	4	4	27	2.13	35	62	097	238
080	A	M	08	08	12	12	02	11	53	5	5	4	20	1.80	15	32	047	238
081	A	M	11	13	13	14	10	09	70	4	4	4	22	1.57	25	36	061	371
082	A	M	11	10	10	11	09	07	58	3	5	4	19	2.88	33	36	069	216
083	A	M	09	13	12	14	13	11	72	3	5	2	26	2.73	47	46	093	226
084	A	M	12	14	15	15	12	10	78	4	5	5	10	2.42	10	28	038	250
085	A	M	07	06	10	08	04	11	46	4	3	4	19	1.53	34	32	066	287
086	A	M	11	15	15	15	13	13	82	3	3	4	20	2.44	23	44	067	238
087	A	M	11	14	13	15	09	13	75	2	3	4	22	2.44	36	48	084	250
088	A	M	11	13	09	11	11	10	65	2	5	5	23	1.75	37	34	071	226
089	A	M	13	14	13	14	13	13	80	3	4	4	22	2.00	29	38	067	216
090	A	M	13	12	15	15	10	09	74	4	5	4	14	1.33	20	26	046	161
091	A	M	09	15	12	14	10	11	71	3	4	3	20	2.25	29	20	049	262
092	A	M	13	14	09	15	11	12	74	2	3	4	22	4.00	34	46	080	327
093	A	M	12	12	13	15	11	12	75	3	3	4	18	3.25	28	36	064	262
094	A	M	12	13	13	15	15	14	82	3	3	3	12	2.60	16	26	042	216
095	A	M	12	13	12	12	09	08	66	3	4	5	17	1.47	25	32	057	275
096	A	M	07	10	12	15	10	09	63	3	5	4	15	1.57	21	28	049	226
097	A	M	12	10	13	12	05	12	64	3	4	4	14	0.56	15	30	045	207

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
098	A	M	11	13	10	13	06	10	63	4	5	3	17	2.87	29	38	067	318
099	A	M	12	10	09	12	06	04	53	3	1	5	19	1.58	41	50	091	238
100	A	M	10	13	14	15	11	06	69	3	5	4	21	2.07	18	24	042	161
101	A	M	13	07	14	05	10	15	64	2	5	2	25	3.13	40	34	074	195
102	A	M	10	12	14	15	08	08	67	2	5	4	27	1.75	39	40	079	161
103	A	M	11	12	13	08	11	06	61	2	2	3	24	3.62	40	60	100	359
104	A	M	08	12	10	12	07	08	57	2	4	4	16	1.93	22	34	056	216
105	A	M	09	10	12	11	09	08	59	2	3	4	20	3.06	33	34	067	298
106	A	M	06	10	11	13	12	12	64	4	4	5	19	1.09	19	20	039	195
107	A	M	12	14	14	14	14	13	81	3	5	3	18	1.20	22	28	050	275
108	A	M	07	08	10	10	05	11	51	3	5	4	21	3.33	23	34	057	128
109	A	M	11	11	15	11	14	09	71	2	4	2	23	3.00	19	28	047	216
110	A	F	10	07	12	09	06	11	55	4	4	5	13	2.00	20	38	058	250
111	A	F	08	12	06	12	11	12	61	3	4	4	22	3.31	35	58	093	238
112	A	F	09	15	15	15	12	10	76	3	4	4	15	3.00	17	40	057	226
113	A	F	14	12	13	11	13	12	75	3	4	4	12	2.20	18	28	046	216
114	A	F	13	15	12	14	13	11	78	2	2	3	19	2.80	42	44	086	275
115	A	F	09	15	14	12	10	09	69	3	4	4	20	2.13	25	50	075	207
116	A	F	05	09	12	13	04	07	50	4	5	5	16	1.80	40	28	068	104
117	A	F	13	14	12	15	13	12	79	4	5	4	18	2.86	31	46	077	262
118	A	F	10	15	10	13	12	13	73	3	3	4	09	1.23	07	16	023	275
119	A	F	10	14	13	15	12	11	75	3	3	3	20	2.86	35	34	069	309
120	A	F	11	13	12	14	07	12	69	2	1	4	24	3.27	38	54	092	309
121	A	F	11	14	13	14	09	11	72	3	5	3	17	3.20	28	36	064	250
122	A	F	09	14	12	15	11	12	73	3	4	1	24	3.21	41	46	087	216

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
123	A	F	11	15	14	14	13	09	76	3	4	5	20	2.33	32	38	070	161
124	A	F	07	14	08	14	14	09	66	3	1	4	20	2.46	30	48	078	250
125	A	F	11	13	11	15	09	12	71	3	3	4	13	2.00	26	28	054	226
126	A	F	08	12	13	13	08	08	62	3	4	4	20	2.92	43	44	087	226
127	A	F	13	12	12	15	11	09	72	5	5	5	13	1.93	23	38	061	309
128	A	F	09	12	12	12	14	12	71	3	3	1	17	2.85	32	38	070	275
129	A	F	12	13	13	15	09	13	75	3	1	4	19	2.23	27	32	059	207
130	A	F	13	14	15	15	14	14	85	3	3	3	20	2.64	34	60	094	298
131	A	F	09	14	14	11	11	10	69	4	4	4	20	2.40	26	46	072	287
132	A	F	07	14	11	12	10	11	65	4	4	5	20	3.00	38	58	096	275
133	A	F	14	15	13	15	13	12	82	3	1	4	20	1.88	22	40	062	226
134	A	F	08	10	10	12	10	10	60	4	4	5	13	1.47	24	30	054	195
135	A	F	07	11	15	11	06	07	57	4	4	5	11	1.58	07	20	027	140
136	A	F	13	14	06	09	11	04	57	4	5	3	10	1.83	13	20	033	185
137	A	F	10	13	15	15	10	12	75	4	3	4	15	2.00	26	42	068	226
138	A	F	08	11	11	14	05	06	55	5	3	4	21	2.62	36	36	072	216
139	A	F	14	15	15	13	13	10	80	3	4	3	22	2.50	21	28	049	226
140	A	F	11	10	11	12	09	09	62	2	4	2	28	3.50	54	60	114	238
141	A	F	07	12	09	11	04	10	53	4	5	4	18	2.77	29	42	071	216
142	A	F	09	14	14	12	09	11	69	3	3	2	18	3.92	32	52	084	287
143	A	F	03	10	12	14	04	06	49	2	3	1	26	2.33	43	60	103	262
144	A	F	12	11	10	12	05	05	55	3	4	4	22	2.29	16	32	048	287
145	A	F	10	14	13	14	14	11	76	3	3	3	20	1.93	25	42	067	226
146	A	F	06	13	12	10	09	11	61	3	5	4	22	3.13	34	46	080	238
147	A	F	12	14	14	15	14	13	82	3	5	4	17	3.25	30	42	072	185

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
148	A	F	09	13	12	13	07	09	63	2	3	4	24	3.47	36	46	082	216
149	A	F	13	14	13	15	13	13	81	2	2	4	24	3.73	47	52	099	371
150	A	F	05	11	11	08	04	07	46	3	4	4	14	2.50	32	42	074	250
151	A	F	13	13	14	15	15	12	82	3	3	3	17	1.07	29	36	065	262
152	A	F	10	13	14	14	13	13	77	2	3	3	24	2.20	25	42	067	185
153	A	F	12	15	15	14	14	15	85	3	3	3	17	3.00	32	48	080	262
154	A	F	05	12	14	11	07	10	59	3	4	4	21	2.60	35	46	081	216
155	A	F	12	14	13	15	14	11	79	3	3	5	16	2.43	29	28	057	207
156	A	F	08	11	13	09	05	07	53	2	3	2	25	3.92	36	46	082	226
157	A	F	09	09	10	13	06	14	61	4	1	1	16	1.33	21	34	055	262
158	A	F	11	11	09	14	13	14	72	3	3	2	21	3.14	35	56	091	298
159	A	F	13	14	15	15	12	11	80	3	3	4	14	1.56	33	44	077	216
160	A	F	10	12	12	10	09	11	64	3	1	4	22	1.67	37	44	081	207
161	A	F	08	10	11	12	09	13	63	3	5	5	20	1.29	36	42	078	216
162	A	F	13	13	15	14	10	13	78	4	4	4	15	1.53	14	24	038	185
163	A	F	12	14	13	15	13	14	81	3	4	5	16	3.17	35	22	057	226
164	A	F	12	14	13	14	09	08	70	3	3	4	14	1.50	19	38	057	309
165	A	F	10	13	11	13	07	06	60	3	5	4	16	2.67	27	34	061	238
166	A	F	14	12	12	14	13	09	74	4	4	3	21	2.81	23	44	067	185
167	A	F	10	14	13	15	12	13	77	4	5	5	10	2.20	28	40	068	318
168	A	F	09	14	15	15	14	09	76	3	4	4	16	1.07	25	24	049	207
169	A	F	06	15	14	15	14	11	75	3	5	4	15	2.27	15	24	039	216
170	A	F	07	14	12	13	10	10	66	3	4	5	24	2.20	40	58	098	250
171	A	F	07	13	13	13	09	11	66	5	4	5	19	2.00	36	42	078	226
172	A	F	10	14	13	14	13	08	72	5	5	4	16	0.64	23	34	057	275

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
173	A	F	09	12	09	11	10	10	61	4	4	5	18	1.20	26	36	062	468
174	A	F	10	08	14	13	10	10	65	3	5	4	19	3.07	30	50	080	216
175	A	F	10	13	11	14	13	09	70	3	3	3	27	3.81	46	56	102	195
176	A	F	10	13	14	12	08	09	66	3	5	4	21	1.88	38	42	080	150
177	A	F	10	15	15	15	13	11	79	3	3	4	24	2.87	46	52	098	262
178	A	F	12	15	14	14	10	09	74	4	4	4	13	1.38	10	42	052	150
179	A	F	06	13	12	12	10	09	62	3	4	4	20	2.60	33	56	089	238
180	A	F	08	10	09	10	05	10	52	2	5	4	23	2.80	37	46	083	287
181	A	F	09	14	12	14	12	09	70	3	4	4	20	2.50	32	42	074	338
182	A	F	07	11	12	10	06	08	54	5	4	3	17	2.00	21	40	061	185
183	A	F	08	15	13	14	14	14	78	3	3	4	20	2.36	31	56	087	262
184	A	F	11	14	15	15	13	09	77	3	4	4	19	2.86	25	36	061	262
185	A	F	08	10	11	12	06	13	60	4	3	2	09	2.43	12	30	042	216
186	A	F	12	14	11	12	11	08	68	3	3	2	17	2.54	29	28	057	262
187	A	F	11	14	13	10	06	12	66	3	4	2	19	2.69	28	44	072	318
188	T	M	10	13	13	10	06	12	64	3	5	2	22	2.38	22	26	048	115
189	T	M	09	08	14	12	05	13	61	4	3	4	23	0.79	33	50	083	250
190	T	M	14	15	12	15	09	13	78	3	3	5	23	0.40	29	36	065	250
191	T	M	11	12	12	14	15	12	76	3	3	4	26	1.44	39	36	075	262
192	T	M	13	15	15	15	15	08	81	2	4	4	15	1.93	18	28	046	185
193	T	M	13	15	13	15	14	15	85	3	3	4	12	3.00	30	32	062	195
194	T	M	07	10	14	11	11	11	64	3	3	3	19	2.80	30	48	078	298
195	T	M	10	14	14	14	13	14	79	3	3	4	20	1.94	35	40	075	250
196	T	M	12	12	09	13	11	13	70	2	3	4	20	2.27	30	40	070	185
197	T	M	09	15	11	15	10	06	66	2	5	4	22	2.57	25	40	065	185

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
198	T	M	08	14	14	13	07	11	67	3	4	4	18	2.13	31	38	069	185
199	T	M	10	12	10	14	04	11	61	4	4	4	13	0.53	12	12	024	174
200	T	M	10	12	09	08	03	08	50	2	3	4	18	0.69	26	30	056	298
201	T	M	14	14	14	14	14	12	82	2	4	3	27	3.20	29	46	075	250
202	T	M	11	10	13	12	13	13	72	3	3	4	21	2.93	29	42	071	238
203	T	M	08	06	10	10	04	10	48	3	4	5	21	2.58	29	38	067	216
204	T	M	08	12	15	10	04	10	59	3	4	1	22	2.50	31	48	079	195
205	T	M	06	11	05	05	03	04	34	3	3	3	26	2.27	36	44	080	287
206	T	M	12	12	15	12	10	12	73	3	4	4	19	2.93	28	30	058	207
207	T	M	11	09	12	11	07	11	61	4	3	3	17	1.64	24	30	054	195
208	T	M	09	14	11	15	11	10	70	3	4	4	19	0.57	28	30	058	174
209	T	M	12	14	15	13	14	14	82	3	4	4	21	0.33	35	56	091	216
210	T	M	12	12	12	12	09	10	67	2	3	2	25	2.50	39	28	067	275
211	T	M	07	08	10	08	08	12	53	3	3	1	18	1.14	24	34	058	216
212	T	M	11	15	15	14	13	11	79	2	2	3	26	1.93	33	48	081	238
213	T	M	07	10	12	12	08	07	56	4	4	5	16	0.64	32	22	054	250
214	T	M	12	09	10	13	11	09	64	4	4	3	22	1.40	28	50	078	185
215	T	M	11	13	15	14	13	09	75	3	4	4	19	1.93	32	40	072	161
216	T	M	14	11	14	15	12	14	80	3	5	2	16	1.71	23	40	063	216
217	T	M	07	10	14	10	07	10	58	4	4	2	18	1.13	20	30	050	226
218	T	M	06	08	10	11	07	09	51	3	4	4	26	3.88	43	56	099	226
219	T	M	10	13	10	09	05	12	59	4	4	5	18	3.13	30	42	072	216
220	T	M	11	14	11	13	10	07	66	2	3	4	29	4.00	57	58	115	275
221	T	M	12	15	14	14	13	13	81	3	4	3	23	1.53	31	50	081	287
222	T	M	11	15	15	11	14	15	81	3	3	4	17	1.80	34	32	066	226

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
223	T	M	11	10	14	09	10	09	63	3	1	5	27	1.27	32	36	068	318
224	T	M	13	15	13	14	13	11	79	2	1	4	22	3.40	33	52	085	216
225	T	M	07	14	13	14	09	06	63	3	3	5	22	1.20	32	38	070	195
226	T	M	12	09	14	09	07	11	62	2	4	4	19	1.57	20	40	060	309
227	T	M	10	09	12	09	08	08	56	3	3	4	22	0.13	31	44	075	262
228	T	M	04	12	12	11	06	12	57	3	5	4	25	2.53	37	54	091	250
229	T	M	07	10	08	13	07	05	50	3	4	5	17	1.43	14	32	046	287
230	T	M	11	13	14	13	13	15	79	3	5	3	16	1.29	21	18	039	150
231	T	M	10	13	15	14	09	09	70	3	4	4	20	2.08	27	40	067	161
232	T	M	12	14	15	15	14	13	83	3	4	3	21	2.50	19	44	063	216
233	T	M	10	15	14	15	11	12	77	3	3	2	20	1.87	22	32	054	250
234	T	M	11	13	14	15	15	14	82	3	5	3	21	3.07	33	52	085	174
235	T	M	12	15	12	15	14	13	81	3	4	4	19	2.13	31	30	061	318
236	T	M	10	14	11	13	07	09	64	3	4	2	27	2.63	31	46	077	216
237	T	M	09	10	14	14	11	08	66	3	3	4	12	1.94	16	34	050	250
238	T	M	08	10	14	12	13	12	69	5	3	5	17	1.36	35	42	077	216
239	T	M	11	13	13	14	11	14	76	3	5	5	19	1.47	23	36	059	185
240	T	M	10	10	12	15	11	08	66	3	3	4	23	2.50	40	44	084	226
241	T	M	14	15	13	15	13	15	85	3	3	3	18	2.40	36	52	088	226
242	T	M	09	12	11	12	10	10	64	3	3	4	20	2.14	23	38	061	262
243	T	M	12	15	13	15	11	11	77	3	1	4	16	2.23	29	38	067	207
244	T	M	13	10	11	10	11	11	66	3	4	4	19	2.00	28	44	072	185
245	T	M	13	15	13	15	14	14	84	3	3	3	20	2.33	30	36	066	226
246	T	M	13	13	14	08	04	10	62	4	4	4	18	0.33	25	34	059	128
247	T	M	11	14	14	11	10	07	67	5	4	4	20	0.73	30	24	054	207

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
248	T	M	10	13	13	12	10	10	68	3	5	5	23	0.50	24	38	062	250
249	T	M	13	12	14	09	13	05	66	4	4	4	10	2.08	12	32	044	216
250	T	M	12	12	14	13	08	10	69	3	3	5	22	1.57	32	32	064	207
251	T	M	10	12	12	15	06	10	65	3	3	2	21	2.79	40	46	086	327
252	T	M	11	15	14	14	14	13	81	3	3	3	22	2.67	32	42	074	262
253	T	M	13	15	14	15	12	09	78	2	4	3	18	1.77	33	30	063	185
254	T	M	15	14	14	15	14	14	86	3	3	5	23	2.20	32	46	078	207
255	T	M	10	10	11	11	07	07	56	3	4	4	21	1.57	37	40	077	287
256	T	F	12	13	12	13	12	07	69	4	4	5	14	1.69	14	28	042	238
257	T	F	11	14	13	14	11	12	75	3	3	2	18	2.50	23	40	063	384
258	T	F	09	12	11	10	08	09	59	4	4	4	10	2.31	15	30	045	185
259	T	F	08	13	13	15	08	08	65	3	4	2	19	2.50	36	44	080	287
260	T	F	10	11	03	15	08	10	57	3	4	2	17	2.57	33	56	089	275
261	T	F	10	14	14	15	08	10	71	2	3	4	23	1.64	29	44	073	216
262	T	F	08	13	14	11	09	11	66	3	3	2	22	2.36	32	54	086	275
263	T	F	09	13	12	12	10	11	67	3	3	5	18	0.83	35	38	073	262
264	T	F	14	15	13	14	14	12	82	3	1	4	16	2.00	18	34	052	226
265	T	F	09	12	11	12	10	11	65	2	3	3	20	1.19	22	36	058	250
266	T	F	12	15	14	15	14	13	83	3	3	5	20	2.07	30	40	070	238
267	T	F	13	15	13	15	13	09	78	3	3	4	17	2.47	38	44	082	250
268	T	F	12	14	15	15	08	11	75	4	3	3	09	1.43	22	34	056	250
269	T	F	14	14	14	15	14	11	82	3	3	2	20	3.07	45	52	097	262
270	T	F	12	13	12	14	11	09	71	3	4	4	20	2.50	26	40	066	216
271	T	F	12	13	12	15	13	14	79	3	4	3	17	2.20	19	34	053	074
272	T	F	11	12	12	14	13	12	74	4	5	4	15	2.50	21	30	051	216

APPENDIX D (Continued)

Subject Number	Group	Sex	CTP							Englander			ACT	GPA	Nelson-Denny			
			SR	PW	PF	FB	WT	NS	T-PA	I	R	S			V	C	Tot	Rate
273	T	F	10	14	13	15	13	14	79	3	4	4	23	3.06	39	44	083	287
274	T	F	12	10	12	10	07	06	57	2	4	4	20	1.75	36	48	084	262
275	T	F	10	07	09	05	06	04	41	4	4	5	19	0.77	11	26	037	195
276	T	F	08	12	15	15	08	07	65	4	4	2	19	2.88	28	38	066	207
277	T	F	10	15	08	12	15	12	72	3	4	3	16	2.29	29	38	067	287
278	T	F	09	15	12	15	14	15	80	3	3	4	16	2.00	42	44	086	287
279	T	F	08	14	14	13	11	12	72	3	5	4	17	2.23	31	44	075	195
280	T	F	11	13	11	13	13	15	76	3	1	4	21	3.50	66	64	130	309
281	T	F	09	11	13	10	12	09	64	3	5	4	17	0.67	25	36	061	238
282	T	F	11	13	13	11	09	10	67	3	3	4	11	1.79	22	26	048	185
283	T	F	07	12	11	12	09	07	58	3	4	5	13	2.50	25	46	071	318
284	T	F	10	10	08	13	08	14	63	4	1	4	17	1.40	25	50	075	287
285	T	F	13	12	13	14	15	13	80	4	4	4	16	0.92	16	42	058	216
286	T	F	09	14	14	15	12	11	75	3	2	5	21	2.80	37	58	095	318
287	T	F	12	14	09	11	10	08	64	3	3	4	18	2.33	23	34	057	275
288	T	F	08	10	13	10	11	10	62	2	3	5	24	3.29	36	52	088	275
289	T	F	12	14	15	15	13	12	81	3	5	4	09	2.14	13	22	035	185
290	T	F	12	13	12	13	10	11	71	3	4	4	15	2.00	31	28	059	161
291	T	F	09	11	11	10	08	03	52	5	4	5	18	2.89	30	30	060	207
292	T	F	09	12	13	11	12	10	67	4	4	5	12	0.46	26	30	056	115
293	T	F	07	13	12	14	08	05	59	3	4	5	16	0.85	19	26	045	250
294	T	F	07	12	12	11	10	08	60	3	3	5	16	2.08	29	38	067	207
295	T	F	09	13	12	15	09	11	69	4	4	5	11	1.93	31	36	067	287
296	T	F	13	15	14	13	14	11	80	3	4	4	16	2.40	17	28	045	216
297	T	F	08	13	12	14	11	10	68	5	5	5	13	2.31	29	38	067	195

VITA /

David Murray DeFrain

Candidate for the Degree of

Doctor of Education

Thesis: THE EFFECTS OF SELF-CONCEPT AND SELECTED PERSONAL AND EDUCATIONAL VARIABLES UPON ATTRITION IN A NON-CREDIT COLLEGE READING IMPROVEMENT PROGRAM

Major Field: Educational Psychology

Biographical:

Personal Data: Born in Harbor Beach, Michigan, November 16, 1943, the son of Murray A. and Vivian L. DeFrain.

Education: Attended grade school in Cass City, Michigan, and Holden, Missouri; graduated from Warrensburg High School, Warrensburg, Missouri in 1961; received the Associate in Arts degree from Graceland College, Lamoni, Iowa, with a major in Liberal Arts, in June, 1963; received the Bachelor of Arts degree from Central Missouri State College, Warrensburg, Missouri, with a major in Psychology, in August, 1965; received the Master of Science degree from Oklahoma State University, Stillwater, Oklahoma, with a major in Psychology, in May, 1967; completed requirements for the Doctor of Education degree in May, 1970.

Professional Experience: Teaching assistantship in Reading, Oklahoma State University, September, 1966, to January, 1968; teaching Reading Improvement at Federal Aviation Authority, Oklahoma City, Oklahoma, March, 1967, to October, 1968; teaching assistantship in Educational Psychology, Oklahoma State University, January, 1968, to July, 1968; reading consultant, Kingfisher County, Oklahoma, June, 1967, to April, 1968; Director of Developmental Reading, St. Gregory's College, Shawnee, Oklahoma, September, 1968, to May, 1969; Coordinator of College Skills, Central Missouri State College, Warrensburg, Missouri, June, 1969, to the present.